

EPA Jacket 85937-2

Vol.2

PROCESSING REQUEST

Reg # 85937-2

Decision # 521545

Description: Acceptable Ubl Notif: Addition of ABN and
Integration of sublabels under master
label page

Electronic Label & Letter
(see PPLS):

OR

Non Electronic
Label & Letter
(Scanning required):

☒ Dated: 10/14/14

☐ Dated:

Only one label type should be selected

Other Materials Sent (see jacket):

☐ New CSF(s) Dated:

☐ Other:

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: A. Reighart

Division: BPPD

Phone:

Date: 10/14/14



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

October 14, 2016

M. Sam Bondurant
Consultant
Plant Impact Plc
c/o Bondurants Consulting LLC
2502 Cedar Ridge Drive
Germantown, TN 38138

Subject: Labeling Notification per Pesticide Registration Notice (PRN) 98-10 – Acceptable
Addition of Alternate Brand Name and Integration of Sublabels under Master Label Page
Product Name: Bug Oil Food Use
EPA Registration Number: 85937-2
Application Date: September 16, 2016
OPP Decision Number: 521565

Dear Ms. Bondurant:

The U.S. Environmental Protection Agency (EPA) is in receipt of your application for notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Biopesticides and Pollution Prevention Division (BPPD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The labeling submitted with this application has been stamped "Notification" and will be placed in our records. The alternate brand name "Nerio" been added to the product's records. You must submit one (1) copy of the final printed labeling with the modifications.

Should you wish to add/retain a reference to your company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and is subject to review by the EPA. If the website is false or misleading, the product will be considered to be misbranded and sale or distribution of the product is unlawful under FIFRA section 12(a)(1)(E). 40 CFR § 156.10(a)(5) lists examples of statements the EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the EPA find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA-approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

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EPA Reg. No. 85937-2
OPP Decision No. 521565

If you have any questions, please contact Andrew Reighart of my team by phone at (703) 347-0469 or via email at reighart.andrew@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew C. Bryceland". The signature is fluid and cursive, with a large, stylized initial 'A'.

Andrew Bryceland, Team Leader
Biochemical Pesticides Branch
Biopesticides and Pollution
Prevention Division (7511P)
Office of Pesticide Programs

Enclosure

[Bracketed information is optional text]

BUG OIL (EPA REG. NO. 85937-2)**MASTER LABEL****Sublabel A is for Commercial Use**

Indoor and Outdoor Use as an insecticide/acaricide for the control of mites, whiteflies, aphids, mealybugs, scales and psylla on all food crops.

Sublabel B is for Residential Use

Indoor and Outdoor Use as an insecticide/acaricide for the control of mites, whiteflies, aphids, mealybugs, scales and psylla on all food crops

BUG OIL FOOD USE

For Indoor and Outdoor Use as an insecticide/

Acaricide for the control of mites, whiteflies, aphids, mealybugs, scales and psylla [on all food crops].

ACTIVE INGREDIENTS:

Canola Oil.....	93.899%
Tagetes Oil.....	0.6%
Thyme Oil.....	0.6%
Wintergreen Oil.....	0.001%
OTHER INGREDIENTS.....	4.9%
TOTAL.....	100.000%

KEEP OUT OF REACH OF CHILDREN**NOTIFICATION**

85937-2

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

10/14/2016

[Refer to [Back][Side][Other] Panel or Precautionary Statements]

Manufactured by:

Plant Impact plc

Rothamsted, West Common, Harpenden

Hertfordshire, AL5 2JQ

United Kingdom

EPA Reg. No. 85937-2

EPA Est. No. XXXXX-

NET CONTENTS: 1 Gallon

ALTERNATE NAME: NERIO™



Bug Oil Food Use
Bug Oil Food Use Commercial
[Sub-Label A]

For Indoor and Outdoor Use as an insecticide/acaricide for the control of mites, whiteflies, aphids, mealybugs, scales and psylla [on all food crops].

ACTIVE INGREDIENTS:

Canola Oil.....	93.899%
Tagetes Oil.....	0.6%
Thyme Oil.....	0.6%
Wintergreen Oil.....	0.001%
OTHER INGREDIENTS.....	4.9%
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KEEP OUT OF REACH OF CHILDREN

[Refer to [Back][Side][Other] panel or Precautionary Statements]

Manufactured by:

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Rothamsted, West Common, Harpenden

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EPA Reg. No. 85937-2

EPA Est. No.

[] Denotes optional language

NET CONTENTS: X gallon(s) [X litre(s)]

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Prolonged or frequently repeated skin contact with the concentrated product may cause allergic reactions in some individuals.

ENVIRONMENTAL HAZARDS

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation [Read][all other safety precautions and directions for use][entire label][prior to use].

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

AGRICULTURAL USE REQUIREMENTS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Use this product only in accordance with its label and with Worker Protection Standard (WPS), 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides.

It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment, notification to workers and restricted entry interval (REI). The requirements in this box apply to uses of this product that are covered by the Worker Protection Standard (WPS).

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry into restricted areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water), is:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that area NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, and greenhouses.

- Keep children and pets off treated areas until dry.

Application Timing and Dose Rates

For all food crop plants and listed pests, apply Bug Oil at the rate of a 1% or 2% spray solution. See application instructions for more information. For a 1% spray solution, apply up to a maximum of 260 gallons of spray solution per acre (equivalent to no more than 2.6 gallons of Bug Oil per acre). For a 2% spray solution, apply up to a maximum of 260 gallons of spray solution per acre (equivalent to no more than 5.2 gallons of Bug Oil per acre). Apply as soon as pests appear on the plant. If required, repeat applications every 5-7 days to ensure that each new generation that appears is treated.

Mixing

Shake the container of Bug Oil thoroughly before opening.

For a 1% spray solution, mix 1.3 fluid ounces Bug Oil per gallon of water, equivalent to no more than 7.7 fluid ounces of Bug Oil per 1000 square feet, or 2.6 gallons of Bug Oil per acre. For a 2% spray solution, mix 2.6 fluid ounces of Bug Oil per gallon of water, equivalent to no more than 15.4 fluid ounces of Bug Oil per 1000 square feet, or 5.2 gallons of Bug Oil per acre.

Fill the spray tank with approximately half the required amount of water. Accurately measure the correct amount of Bug Oil and add to the spray tank, agitating the mixture continuously. Add the remainder of the water to the spray tank. Keep the solution agitated during spraying.

and use immediately. Avoid leaving spray solution in the sprayer for long periods such as during meals and overnight.

FILL THE TANK HALF FULL THEN ADD PRODUCT IN THIS ORDER:

1. Dry flowables (DF)
2. Wettable powders (WP) and Wettable dry granules (WDG)
3. Flowables (F and SC)
4. Foliar fertilizers
5. Then any products containing oils of any kind including Emulsifiable Concentrates (EC)

Spray Application

Choose a nozzle that produces a fine spray quality and apply the product to give thorough coverage of the plant foliage, ensuring both the upper and lower surfaces of the leaves are covered. Do not spray more than required and ensure spray run-off is avoided. A minimum of 22 gallons of spray solution per acre should be applied.

[Cleaning Spray Equipment

Ensure all spray equipment is thoroughly cleaned after use. Use of water and detergent will be sufficient. Dispose of washings according to local regulations.]

[Crop Safety

Bug Oil has been tested on tomatoes and a range of plant species. However, before using Bug Oil on any new plant species or varieties, it is recommended that a small area is sprayed first to assess crop safety. Any mixtures with other products need to be tested prior to large scale use to ensure physical compatibility and crop safety.

Tomato crops can be sprayed when in flower but suitable precautions should be taken to minimize the risk of crop damage by spraying in the morning or evening when temperatures are lower.]

USE SITES

Bug Oil is used to control mites, whiteflies, aphids, thrips, mealybugs, scales and psylla [on all food crops]. [Please see Appendix I for all food crops.] [Some or all crops may be included on product label.] Bug Oil can be used on [insert specific crops from Appendix I].]

Pre-harvest Interval: This product can be applied up to and including the day of harvest.

Application Instructions

Maximum Single Application Rate					
Pest	1% Spray Solution		2% Spray Solution		Notes
	fl. oz. / gallon of water	gallons Bug Oil/ Acre	fl. oz. / gallon of water	gallons Bug Oil/ Acre	
Whiteflies <i>Trialeurodes vaporariorum</i> <i>Bemisia tabaci</i> <i>Bemisia argentifolii</i>	1.3	2.6	2.6	5.2	Apply 1% spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Mites <i>Tetranychus spp.</i> <i>Panonychus spp.</i>	1.3	2.6	N/A	N/A	
Aphids <i>Aphis gossypii</i> <i>Myzus persicae</i> <i>Aphis spp.</i>	1.3	2.6	2.6	5.2	Apply 1% spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Thrips <i>Frankliniella spp.</i>	N/A	N/A	2.6	5.2	
Mealybugs	1.3	2.6	N/A	N/A	
Scales	1.3	2.6	N/A	N/A	
Psylla spp.	1.3	2.6	N/A	N/A	

Apply no more than 260 gallons of water per acre. Apply to ensure thorough coverage of plants and pests. A minimum rate of 22 gallons per acre is recommended.

Resistance: The mode of action includes a physical element and resistance is less likely to arise with Bug Oil than pesticides relying on chemical effects alone.

[COMPATIBILITY]

Bug Oil may be tank-mixed with a variety of plant protection products and foliar nutrient sprays providing that the application timing is correct for both Bug Oil and the partner(s) in the mixture.

The products should be added separately to the bulk of water in the spray tank. Continuous agitation should be maintained and the product used immediately after mixing.

For further information on the approval status of mixture partners, consult Plant Impact.

If a tank-mix with another product is required, add the Bug Oil to the spray tank first and ensure that it is fully dispersed before adding subsequent products. PLEASE SEE THE MIXING SCHEDULE ABOVE.

Ensure that the label recommendations are followed for the partner product.]

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal.

PESTICIDE STORAGE

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed.

Store in original container and out of the reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Non-refillable container. Do not reuse or refill this container.

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[NOTICE TO BUYER]

[Note: Plant Impact warrants that this product complies with the specifications expressed in this label. To the extent consistent with applicable law, Plant Impact makes no other warranties, and disclaims all other warranties, express or implied, including but not limited to warranties of merchantability and fitness for the intended purpose. To the extent consistent with applicable law, Plant Impact's liability or default, breach or failure under this label shall be limited to the amount of the purchase price. To the extent consistent with applicable law, Plant Impact shall have no liability for consequential damages.]

[Warranty and Disclaimer Statement]

[The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Such risks may arise from weather conditions, soil factors, off-target movement, unconventional farming techniques, the presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of Plant Impact, and can cause crop injury, injury to non-target crops or plants, ineffectiveness of the product, or other unintended consequences. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

Plant Impact warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal

conditions. This warranty does not extend to the use of this product contrary to label instructions or under conditions not reasonably foreseeable to Plant Impact, and is subject to the inherent risks described above.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PLANT IMPACT DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PLANT IMPACT, MANUFACTURER, AND SELLER DISCLAIM AND SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE, OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES, AND THE USER AND BUYER WAIVE ANY RIGHT THAT THEY MAY HAVE TO SUCH DAMAGES. NO AGENT, REPRESENTATIVE OR EMPLOYEE OF PLANT IMPACT IS AUTHORIZED TO MAKE ANY WARRANTY, GUARANTEE OR REPRESENTATION BEYOND THOSE CONTAINED HEREIN OR TO MODIFY THE WARRANTIES CONTAINED HEREIN, TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE TOTAL LIABILITY OF PLANT IMPACT, MANUFACTURER, AND SELLER, SHALL BE LIMITED TO THE PURCHASE PRICE PAID, OR AT PLANT IMPACT'S ELECTION, THE REPLACEMENT OF THE PRODUCT.]

Manufactured by:

Plant Impact plc
Rothamsted, West Common, Harpenden
Hertfordshire, AL5 2JQ
United Kingdom
Tel. +44 (0) 1582 465540

[Batch Code]

[Some or all crops from Appendix I may be listed on the final marketed product label.]

APPENDIX I

COTTON

ROOT AND TUBER VEGETABLES - CROP GROUP 1

Arracacha (*Arracacia xanthorrhiza*)
Arrowroot (*Maranta arundinacea*)
Artichoke, Chinese (*Stachys affinis*)
Artichoke, Jerusalem (*Helianthus tuberosus*)
Beet, garden (*Beta vulgaris*)
Beet, sugar (*Beta vulgaris*)
Burdock, edible (*Arctium lappa*)
Canna, edible (*Queensland arrowroot*) (*Canna indica*)
Carrot (*Daucus carota*)
Cassava, bitter and sweet (*Manihot esculenta*)
Celeriac (celery root) (*Apium graveolens* var. *rapaceum*)
Chayote (root) (*Sechium edule*)
Chervil, turnip-rooted (*Chaerophyllum bulbosum*)
Chicory (*Cichorium intybus*)
Chufa (*Cyperus esculentus*)
Dasheen (taro) (*Colocasia esculenta*)
Ginger (*Zingiber officinale*)
Ginseng (*Panax quinquefolius*)
Horseradish (*Armoracia rusticana*)
Leren (*Calathea allouia*)
Parsley, turnip-rooted (*Petroselinum crispum* var. *tuberosum*)
Parsnip (*Pastinaca sativa*)
Potato (*Solanum tuberosum*)
Radish, oriental (daikon) (*Raphanus sativus* subvar. *Longipinnatus*)
Rutabaga (*Brassica campestris* var. *napobrassica*)
Salsify (oyster plant) (*Tragopogon porrifolius*)
Salsify, black (*Scorzonera hispanica*)
Salsify, Spanish (*Scolymus hispanicus*)
Skirret (*Sium sisarum*)
Sweet potato (*Ipomoea batatas*)
Tanier (cocoyam) (*Xanthosoma sagittifolium*)
Turmeric (*Curcuma longa*)
Turnip (*Brassica rapa* var. *rapa*)
Yam bean (jicama, manioc pea) (*Pachyrhizus* spp.)
Yam, true (*Dioscorea* spp.)

LEAVES OF ROOT AND TUBER VEGETABLES (HUMAN FOOD OR ANIMAL FEED) GROUP - COMMODITIES - CROP GROUP 2

Beet, garden (*Beta vulgaris*)
Beet, sugar (*Beta vulgaris*)
Burdock, edible (*Arctium lappa*)
Carrot (*Daucus carota*)
Cassava, bitter and sweet (*Manihot esculenta*)
Celeriac (celery root) (*Apium graveolens* var. *rapaceum*)
Chervil, turnip rooted (*Chaerophyllum bulbosum*)

Chicory (*Cichorium intybus*)
 Dasheen (taro) (*Colocasia esculenta*)
 Parsnip (*Pastinaca sativa*)
 Radish (*Raphanus sativus*)
 Radish, oriental (daikon) (*Raphanus sativus* subvar. *longipinnatus*)
 Rutabaga (*Brassica campestris* var. *napobrassica*)
 Salsify, black (*Scorzonera hispanica*)
 Sweet potato (*Ipomoea batatas*)
 Tanier (coco Yam) (*Xanthosoma sagittifolium*)
 Turnip (*Brassica rapa* var. *rapa*)
 Yam, true (*Dioscorea* spp.)

BULB VEGETABLES (*Alliums* spp.) GROUP - COMMODITIES - CROP GROUP 3

Chive, fresh leaves (*Allium schoenoprasum* L.)
 Chive, Chinese, fresh leaves (*Allium tuberosum* Rottier ex Spreng)
 Daylily, bulb (*Hemerocallis fulva* (L.) L. var. *fulva*)
 Elegans hosta (*Hosta Sieboldiana* (Hook) Engl)
 Fritillaria, bulb (*Fritillaria* L. *fritillaria*)
 Garlic, bulb (*Allium sativum* L. var. *sativum*) (A. *sativum* Common Garlic Group)
 Garlic, great headed, bulb (*Allium ampeloprasum* L. var. *ampeloprasum*) (A. *ampeloprasum* Great Headed Garlic Group)
 Garlic, Serpent, bulb (*Allium sativum* var. *ophioscorodon* or A. *sativum* Ophioscorodon Group)
 Kurrat (*Allium kurrat* Schweinf. Ex. K. Krause or A. *ampeloprasum* Kurrat Group)
 Lady's leek (*Allium cernuum* Roth)
 Leek (*Allium porrum* L. (syn: A. *ampeloprasum* L. var. *porrum* (L.) J. Gay) (A. *ampeloprasum* Leek Group)
 Leek, wild (*Allium tricoccum* Aiton)
 Lily, bulb (*Lilium* spp. (*Lilium Leichtlinii* var. *maximowiczii*, *Lilium lancifolium*))
 Onion, Beltsville bunching (*Allium x proliferum* (Moench) Schrad.) (syn: *Allium fistulosum* L. x A. *cepa* L.)
 Onion, bulb (*Allium cepa* L. var. *cepa*) (A. *cepa* Common Onion Group)
 Onion, Chinese, bulb (*Allium chinense* G. Don.) (syn: A. *bakeri* Regel)
 Onion, fresh (*Allium fistulosum* L. var. *caespitosum* Makino)
 Onion, green (*Allium cepa* L. var. *cepa*) (A. *cepa* Common Onion Group)
 Onion, macrostem (*Allium macrostemon* Bunge)
 Onion, pearl (*Allium pomom* var. *sectivum* or A. *ampeloprasum* Pearl Onion Group)
 Onion, potato, bulb (*Allium cepa* L. var. *aggregatum* G. Don.) (A. *cepa* Aggregatum Group)
 Onion, tree, tops (*Allium x proliferum* (Moench) Schrad. Ex Wild.) (syn: A. *cepa* var. *proliferum* (Moench) Regel. A. *cepa* L. var. *bulbiferum* L.H. Bailey, A. *cepa* L. var. *Viviparum* (Metz) Alef.)
 Onion, Welsh, tops (*Allium fistulosum* L.)
 Shallot, fresh leaves (*Allium cepa* var. *aggregatum* G. Don.)
 Cultivars, varieties, and/or hybrids of these.

LEAFY VEGETABLES (EXCEPT BRASSICA VEGETABLES) GROUP - CROP GROUP 4

Amaranth (leafy amaranth, Chinese Spinach, tampaia) (*Amaranthus* spp.)
 Arugula (Roquette) (*Eruca sativa*)
 Cardoon (*Cynara cardunculus*)
 Celery (*Apium graveolens* var. *dulce*)
 Celery, Chinese (*Apium graveolens* var. *secalinum*)

Celtuce (*Lactuca sativa* var. *Angustana*)
 Chervil (*Anthriscus cerefolium*)
 Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. *coronarium*)
 Chrysanthemum, garland (*Chrysanthemum coronarium* var. *spaliosum*)
 Corn salad (*Valerianella locusta*)
 Cress, garden (*Lepidium sativum*)
 Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*)
 Dandelion (*Taraxacum officinale*)
 Dock (sorrel) (*Rumex* spp.)
 Endive (escarole) (*Cichorium endivia*)
 Fennel, Florence (finachio) (*Foeniculum vulgare* Azoricum Group)
 Lettuce, head and leaf (*Lactuca sativa*)
 Orach (*Atriplex hortensis*)
 Parsley (*Petroselinum crispum*)
 Purslane, garden (*Portulaca oleracea*)
 Purslane, Winter (*Montia perfoliata*)
 Radicchio (red chicory) (*Cichorium intybus*)
 Rhubarb (*Rheum rhabarbarum*)
 Spinach (*Spinacia oleracea*)
 Spinach, New Zealand (*Tetragonia tetragonioides*, T. *Expansa*)
 Spinach, vine (Malabar spinach, Indian spinach) (*Baselia alba*)
 Swiss chard (*Beta vulgaris* var. *cicla*)

BRASSOCA (COLE) LEAFY VEGETABLES - CROP GROUP 5

Broccoli (*Brassica oleracea* var. *botrytis*)
 Broccoli, Chinese (gai lon) (*Brassica alboglabra*)
 Broccoli raab (rapini) (*Brassica campestris*)
 Brussel sprouts (*Brassica oleracea* var. *gemmifera*)
 Cabbage (*Brassica oleracea*)
 Cabbage, Chinese (bok choy) (*Brassica chinensis*)
 Cabbage, Chinese (napa) (*Brassica pekinensis*)
 Cabbage, Chinese mustard (gai choy) (*Brassica campestris*)
 Cauliflower (*Brassica oleracea* var. *botrytis*)
 Cavalo broccolo (*Brassica oleracea* var. *Botrytis*)
 Collards (*Brassica oleracea* var. *acephala*)
 Kale (*Brassica oleracea* var. *Acephala*)
 Kohlrabi (*Brassica oleracea* var. *gongylodes*)
 Mizuna (*Brassica rapa Japonica* Group)
 Mustard greens (*Brassica juncea*)
 Mustard spinach (*Brassica rapa Perviridis* Group)
 Rape greens (*Brassica napus*)

LEGUME VEGETABLES (SUCCULENT OR DRIED) - CROP GROUP 6

Bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin)
 Bean (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean)
 Bean (*Vigna* spp.) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean)
 Broad bean (fava bean) (*Vicia faba*)

Chickpea (garbanzo bean) (*Cicer arietinum*)
 Guar (*Cyamopsis tetragonoloba*)
 Jackbean (*Canavalia ensiformis*)
 Lablab bean (hyacinth bean) (*Lablab purpureus*)
 Lentil (*Lena esculenta*)
 Pea (*Pisum* spp.) (includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, Green pea, snow pea, sugar snap pea)
 Pigeon pea (*Cajanus cajan*)
 Soybean (*Glycine max*)
 Soybean (immature seed) (*Glycine max*)
 Sword bean (*Canavalia gladiata*)

FOLIAGE OF LEGUME VEGETABLE GROUP - CROP GROUP 7

Any cultivar of bean (*Phaseolus* spp.) and field pea (*Pisum* spp.) and soybean (*Glycine max*)

FRUITING VEGETABLES (EXCEPT CUCURBITS) - COMMODITIES - CROP GROUP 8

Eggplant (*Bolanum melongena*)
 Groundcherry (*Physalis* spp.)
 Pepino (*Solanum muricatum*)
 Pepper (*Capsicum* spp.) (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper)
 Tomatillo (*Physalis ixocarpa*)
 Tomato (*Lycopersicon esculentum*)

CUCURBIT VEGETABLES - CROP GROUP 9

Chayote (fruit) (*Sechium edule*)
 Chinese waxgourd (Chinese preserving melon) (*Benincasa hispida*)
 Citron melon (*Citrullus lanatus* var. *citroides*)
 Cucumber (*Cucumis sativus*)
 Gherkin (*Cucumis angura*)
 Gourd, edible (*Lagenaria* spp.) (Includes hyotan, cuczza); (*Luffa acutangula*, *L. cylindrica*) (includes hechima, Chinese okra)
 Momordica spp. (includes balsam Apple, balsam pear, bitter melon, Chinese Cucumber)
 Muskmelon (hybrids and/or cultivars of *Cucumis melo*) (includes true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon)
 Pumpkin (*Curcubita* spp.)
 Squash, summer (*Cucurbita pepo* var. *melo pepo*) (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini)
 Squash, winter (*Cucurbita maxima*; *C. moschata*) (includes butternut squash, Calabaza, Hubbard squash); (*C. mixta*; *C. pepo*) (includes acorn squash, spaghetti squash)
 Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

CITRUS FRUITS (CITRUS spp., FORTUNELLA spp.) GROUP - COMMODITIES - CROP GROUP 10

Calamondin (*Citrus milis* x *Citrofortunella mitis*)
 Citrus citron (*Citrus medica*)
 Citrus hybrids (*Citrus* spp.) (includes chironja, tangelo, tangor)
 Grapefruit (*Citrus paradisi*)
 Kumquat (*Fortunella* spp.)
 Lemon (*Citrus jambhiri*, *Citrus limon*)

Lime (*Citrus aurantiifolia*)
Mandarin (tangerine) (*Citrus reticulata*)
Orange, sour (*Citrus aurantium*)
Orange, sweet (*Citrus sinensis*)
Pummelo (*Citrus grandis*, *Citrus maxima*)
Satsuma mandarin (*Citrus unshiu*)

POME FRUITS GROUP - COMMODITIES - CROP GROUP 11

Apple (*Malus domestica*)
Crabapple (*Malus* spp.)
Loquat (*Eriobotrya japonica*)
Mayhaw (*Crataegus aestivalis*, *C. opaca*. And *C. rufula*)
Pear (*Pyrus communis*)
Pear, oriental (*Pyrus pyrifolia*)
Quince (*Cydonia oblonga*)

STONE FRUITS GROUP - COMMODITIES - CROP GROUP 12

Apricot (*Prunus amemiac*)
Cherry, sweet (*Prunus avium*)
Cherry, tart (*Prunus cerasus*)
Nectarine (*Prunus persica*)
Peach (*Prunus persica*)
Plum (*Prunus domestica*, *Prunus* spp.)
Plum, Chickasaw (*Prunus angustifolia*)
Plum, Damson (*Prunus domestica* spp. *Insititia*)
Plum, Japanese (*Prunus salicina*)
Plumcot (*Prunus amemiac* × *P. domestica*)
Prune (fresh) (*Prunus domestica*, *Prunus* spp.)

BERRIES GROUP - CROP GROUP 13

Blackberry (*Rubus eubatus*) (including bingleberry, black satin berry, boysenberry, Cherokee blackberry, Chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Himalayaberry, hullberry, Lavacaberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectarberry, ciallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these)
Blueberry (*Vaccinium* spp.)
Currant (*Ribes* spp.)
Elderberry (*Sambucus* spp.)
Gooseberry (*Ribes* spp.)
Huckleberry (*Gaylussacia* spp.)
Loganberry (*Rubus loganobaccus*)
Raspberry, black and red (*Rubus occidentalis*, *Rubus strigosus*, *Rubus idaeus*)

BERRY AND SMALL FRUIT CROP GROUP - CROP GROUP 14

Amur river grape (*Vitis amurensis* Rupr)
Aronia berry (*Aronia* spp.)
Bayberry (*Myrica* spp.)
Bearberry (*Arctostaphylos uva-ursi*)
Bilberry (*Vaccinium myrtillus* L.)

Blackberry (*Rubus* spp.) (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, Lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee dewberry, tayberry, youngberry, zarzamora and cultivars, varieties and/or hybrids of these.)

Blueberry, highbush (*Vaccinium* spp.)

Blueberry, lowbush (*Vaccinium angustifolium* Aiton)

Buffalo currant (*Ribes aureum* Pursh)

Buffaloberry (*Shepherdia argentea* (Pursh) Nutt.)

Che (*Cudrania tricuspidata* Bur. Ex Lavalley)

Chilean guava (*Myrtus ugni* Mol.)

Chokecherry (*Prunus virginiana* L.)

Cloudberry (*Rubus chamaemorus* L.)

Cranberry (*Vaccinium macrocarpon* Aiton)

Currant, black (*Ribes nigrum* L.)

Currant, red (*Ribes rubrum* L.)

Elderberry (*Sambucus* spp.)

European barberry (*Berberis vulgaris* L.)

Gooseberry (*Ribes* spp.)

Grape (*Vitis* spp.)

Highbush cranberry (*Viburnum opulus* L. var. *Americanum* Aiton)

Honeysuckle, edible (*Lonicera caerulea* L. var. *emphylocalyx* Nakai, *Lonicera caerulea* L. var. *edulis* Turcz. Ex herder)

Huckleberry (*Gaylussacia* spp.)

Jostaberry (*Ribes* × *nidigrolaria* Rud. Bauer and A. Bauer)

Juneberry (Saskatoon berry) (*Amelanchier* spp.)

Kiwifruit, fuzzy (*Actinidia deliciosa* A. Chev.) (C.F. Liang and A.R. Fergusons, *Actinidia chinensis* Planch)

Kiwifruit, hardy (*Actinidia arguta* (Siebold and Zucc.) Planch ex Miq)

Lingonberry (*Vaccinium vitis-idaea* L.)

Maypop (*Passiflora incarnata* L.)

Mountain pepper berries (*Tasmania lanceolata* (Poir.) A.C. Sm.

Mulberry (*Morus* spp.)

Muntries (*Kunzea pomifera* F. Muell)

Native currant (*Acrotriche depressa* R.BR.)

Partridgeberry (*Mitchella repens* L.)

Phalsa (*Grewia subinaequalis* DC)

Pinchberry (*Prunus pensylvanica* L.f.)

Raspberry, black and red (*Rubus* spp.)

Riberry (*Syzygium luehmannii*)

Salal (*Gaultheria shallon* Pursh)

Schisandra berry (*Schisandra chinensis* (Turcz.) Baill.)

Sea buckthorn (*Hippophae rhamnoides* L.)

Serviceberry (*Sorbus* spp.)

Strawberry (*Fragaria* × *ananassa* Duchesne)

Wild raspberry (*Rubus muelleri* Lefevre ex P.J. Mull)

Cultivars, varieties and/or hybrids of these.

TREE NUTS - COMMODITIES - CROP GROUP 14

Almond (*Prunus dulcis*)
Beech nut (*Fagus* spp.)
Brazil nut (*Bertholletia excelsa*)
Butternut (*Juglans cinerea*)
Cashew (*Anacardium occidentale*)
Chestnut (*Castanea* spp.)
Chinquapin (*Castanea pumila*)
Filbert (hazelnut) (*Corylus* spp.)
Hickory nut (*Carya* spp.)
Macadamia nut (bush nut) (*Macadamia* spp.)
Pecan (*Carya illinoensis*)
Walnut, black and English (Persian) (*Juglans* spp.)

CEREAL GRAINS - COMMODITIES - CROP GROUP 15

Barley (*Hordeum* spp.)
Buckwheat (*Fagopyrum esculentum*)
Corn (*Zea mays*)
Millet, pearl (*Pennisetum glaucum*)
Millet, proso (*Panicum millaceum*)
Oats (*Avena* spp.)
Popcorn (*Zea mays* var. *everta*)
Rice (*Oryza sativa*)
Rye (*Secale cereale*)
Sorghum (milo) (*Sorghum* spp.)
Teosinte (*Euchlaena mexicana*)
Triticale (*Triticum-Secale* hybrids)
Wheat (*Triticum* spp.)
Wild rice (*Zizania aquatica*)

FORAGE, FODDER AND STRAW OF CEREAL GRAINS GROUP - CROP GROUP 16

Forage, fodder, and straw of all commodities included in the group cereal grains group

GRASS FORAGE, FODDER, AND HAY GROUP - CROP GROUP 17

Any grass, Gramineae family (either green or cured) except sugarcane and those included in the cereal grains group, that will be fed or grazed by livestock, all pasture and range grasses and grasses grown for hay or silage.

NONGRASS ANIMAL FEEDS (FORAGE, FODDER, STRAW, AND HAY) GROUP - CROP GROUP 18

Alfalfa (*Medicago sativa* subsp. *sativa*)
Bean, velvet (*Mucuna pruriens* var. *utilis*)
Clover (*Trifolium* spp., *Melilotus* spp.)
Kudzu (*Pueraria lobata*)
Lespedeza (*Lespedeza* spp.)
Lupin (*Lupinus* spp.)
Sainfoin (*Onobrychis vicifolia*)
Trefoil (*Lotus* spp.)
Vetch (*Vicia* spp.)
Vetch, Crown (*Coronilla varia*)

Vetch, milk (*Astragalus* spp.)

HERBS AND SPICES GROU - CROP GROUP 19

Allspice (*Pimenta dioica*)
Angelica (*Angelica archangelica*)
Anise, (anise seed) (*Pimpinella anisum*)
Anise, star (*Illicium verum*)
Annatto (seed) (*Bixaceae* spp.)
Balm (lemon balm) (*Melissa officinalis*)
Basil (*Ocimum basilicum*)
Borage (*Borago officinalis*)
Burnet (*Sanguisorba minor*)
Camomile (*Anthemis nobilis*)
Caper bulbs (*Capparis spinosa*)
Caraway (*Carum carvi*)
Caraway, black (*Nigella sativa*)
Cardamom (*Elettaria cardamomum*)
Cassia bark (*Cinnamomum aromaticum*)
Cassia buds (*Cinnamomum aromaticum*)
Catnip (*Nepeta cataria*)
Celery seed (*Apium graveolens*)
Chervil (dried) (*Anthriscus cerefolium*)
Chive (*Allium schoenoprasum*)
Chive, Chinese (*Allium tuberosum*)
Cinnamon (*Cinnamomum verum*)
Clary (*Salvia sclarea*)
Clove buds (*Eugenia caryophyllata*)
Coriander (cilantro or Chinese parsley) (leaf) (*Coriandrum sativum*)
Coriander (cilantro) (seed) (*Coriandrum sativum*)
Costmary (*Chrysanthemum balsamita*)
Culantro (leaf) (*Eryngium foetidum*)
Culantro (seed) (*Eryngium foetidum*)
Cumin (*Cuminum cyminum*)
Curry (leaf) (*Murraya koenigii*)
Dill (dillweed) (*Anethum graveolens*)
Dill (seed) (*Anethum graveolens*)
Fennel (common) (*Foeniculum vulgare*)
Fennel, Florence (seed) (*Foeniculum vulgare* Azoricum Group)
Fenugreek (*Trigonella foenumgraecum*)
Grains of paradise (*Aframomum melegueta*)
Horehound (*Marrubium vulgare*)
Hyssop (*Hyssopus officinalis*)
Juniper berry (*Juniperus communis*)
Lavender (*Lavandula officinalis*)
Lemongrass (*Cymbopogon citratus*)
Lovage (leaf) (*Levisticum officinale*)
Lovage (seed) (*Levisticum officinale*)
Mace (*Myristica fragrans*)
Marigold (*Calendula officinalis*)

Marjoram (*Origanum* spp.) (includes sweet or annual marjoram, wild marjoram or oregano, and pot marjoram)
 Mustard (seed) (*Brassica juncea*, *B. hirta*, *B. nigra*)
 Nasturtium (*Tropaeolum majus*)
 Nutmeg (*Myristica fragrans*)
 Parsley (dried) (*Petroselinum crispum*)
 Pennyroyal (*Mentha pulegium*)
 Pepper, black (*Piper nigrum*)
 Pepper, white
 Poppy (seed) (*Papaver somniferum*)
 Rosemary (*Rosemarinus officinalis*)
 Rue (*Ruta graveolens*)
 Saffron (*Crocus sativus*)
 Sage (*Salvia officinalis*)
 Savory, summer and winter (*Satureja* spp.)
 Sweet bay (bay leaf) (*Laurus nobilis*)
 Tansy (*Tanacetum vulgare*)
 Tarragon (*Artemisia dracunculus*)
 Thyme (*Thymus* spp.)
 Vanilla (*Vanilla planifolia*)
 Wintergreen (*Gaultheria procumbens*)
 Woodruff (*Galium odorata*)
 Wormwood (*Artemisia absinthium*)

EDIBLE FUNGI GROUP - COMMODITIES - CROP GROUP 21

Blewitt (*Lepista nuda*)
 Bunashimeji (*Hypsizygus marmmoreus*)
 Chinese mushroom (*Volvariella volvacea*) (Bull.) Singer
 Enoki (*Fiammulina velutipes*) (Curt.) Singer
 Hime-Matsutake (*Agaricus blazei*) Murill
 Hirmeola (*Auricularia auricular*)
 Maitake (*Grifola frondosa*)
 Morel (*Morchella* spp.)
 Nameko (*Pholiota nameko*)
 Net Bearing (*Dictyophora*)
 Oyster mushroom (*Pleurotus* spp.)
 Pom Pom (*Hericium erinaceus*)
 Reishi mushroom (*Ganoderma lucidum* (Leyss. Fr.) Karst.)
 Rodman's Agaricus (*Agaricus bitorquis*) (Quel.) Saccardo
 Shitake mushroom (*Lentinula edodes* (Berk.) Pegl.)
 Shimeji (*Tricholoma conglobatum*)
 Stropharia (*Stropharia* spp.)
 Truffle (*Tuber* spp.)
 White button mushroom (*Agaricus bisporous* (Lange) Imbach)
 White Jelly Fungi (*Tremella fuciformis*)

ALTERNATE BRAND NAME: NERIO™



Bug Oil Food Use
Bug Oil Food Use Residential
[Sub-Label B]

For indoor and Outdoor Use as an insecticide/acaricide for the control of mites, whiteflies, aphids, mealybugs, scales and psylla [on all food crops].

ACTIVE INGREDIENTS:

Canola Oil.....	93.899%
Tagetes Oil.....	0.6%
Thyme Oil.....	0.6%
Wintergreen Oil.....	0.001%
OTHER INGREDIENTS.....	4.9%
TOTAL.....	100.000%

KEEP OUT OF REACH OF CHILDREN

[Refer to [Back][Side][Other] panel or Precautionary Statements]

Manufactured by:

Plant Impact plc

Rothamsted, West Common, Harpenden

Hertfordshire, AL5 2JQ

United Kingdom

EPA Reg. No. 85937-2

EPA Est. No.

[] Denotes optional language

NET CONTENTS: X gallon(s) [X litre(s)]

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Prolonged or frequently repeated skin contact with the concentrated product may cause allergic reactions in some individuals.

ENVIRONMENTAL HAZARDS

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation [Read] [all other safety precautions and directions for use][entire label][prior to use].

Application Timing and Dose Rates

For all food crop plants and listed pests, apply Bug Oil at the rate of 1% or 2% spray solution. See application instructions for more information.

For a 1% spray solution, mix 1.3 fluid ounces of Bug Oil per gallon of water, equivalent to no more than 7.7 fluid ounces of Bug Oil per 1000 square feet, or 2.6 gallons of Bug Oil per acre. For a 2% spray solution, mix 2.6 fluid ounces of Bug Oil per gallon of water, equivalent to no more than 15.4 fluid ounces of Bug Oil per 1000 square feet, or 5.2 gallons of Bug Oil per acre.

Apply as soon as pests appear in the plant. If required repeat applications every 5-7 days to ensure that each new generation that appears is treated.

Mixing

Shake the container of Bug Oil thoroughly before opening. Fill the spray tank with approximately half the required amount of water.

Accurately measure the correct amount of Bug Oil and add this to the spray tank, agitating the mixture continuously. Add the remainder of the water to the tank to make up a 1% spray solution, 1.3 fluid ounces of Bug Oil per gallon water (equivalent to no more than 7.7 fluid ounces of Bug Oil per 1000 square feet) or a 2% spray solution, 2.6 fluid ounces of Bug Oil per gallon water (equivalent to no more than 15.4 fluid ounces of Bug Oil per 1000 square feet). Keep the solution agitated during spraying and use immediately. Avoid leaving spray liquid in the sprayer for longer periods such as during meal times and overnight.

FILL THE TANK HALF FULL THEN ADD PRODUCT IN THIS ORDER:

1. Dry flowables (DF)
2. Wettable powders (WP) and Wettable dry granules (WDG)
3. Flowables (F and SC)
4. Foliar fertilizers
5. Then any products containing oils of any kind including Emulsifiable Concentrates (EC)

[Cleaning Spray Equipment

Ensure all spray equipment is thoroughly cleaned after use. Use of water and detergent will be sufficient. Dispose of washings according to local regulations.]

[Crop Safety

Bug Oil has been tested on tomatoes and a range of plant species. However, before using Bug Oil on any new plant species or varieties, it is recommended that a small area is sprayed first to assess crop safety. Any mixtures with other products need to be tested prior to large scale use to ensure physical compatibility and crop safety.

Tomato crops can be sprayed when in flower but suitable precautions should be taken to minimize the risk of crop damage by spraying in the morning or evening when temperatures are lower.]

USE SITES

Bug Oil is used to control mites, whiteflies, aphids, thrips, mealybugs, scales and psylla [on all food crops]. [Please see Appendix I for all food crops.] [Some or all crops may be included on product label.] Bug Oil can be used on [insert specific crops from Appendix I].]

Pre-harvest Interval: This product can be applied up to and including the day of harvest.

Application Instructions

Maximum Single Application Rate					
Pest	1% Spray Solution		2% Spray Solution		Notes
	fl. oz. / gallon of water	gallons Bug Oil / Acre	fl. oz. / gallon of water	gallons Bug Oil / Acre	
Whiteflies <i>Trialeurodes vaporariorum</i> <i>Bemisia tabaci</i> <i>Bemisia argentifolii</i>	1.3	2.6	2.6	5.2	Apply 1% spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Mites <i>Tetranychus spp.</i> <i>Panonychus spp.</i>	1.3	2.6	N/A	N/A	
Aphids <i>Aphis gossypii</i> <i>Myzus persicae</i> <i>Aphis spp.</i>	1.3	2.6	2.6	5.2	Apply 1% spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Thrips <i>Frankliniella spp.</i>	N/A	N/A	2.6	5.2	
Mealybugs	1.3	2.6	N/A	N/A	
Scales	1.3	2.6	N/A	N/A	
Psylla spp.	1.3	2.6	N/A	N/A	

Apply to ensure thorough coverage of plants and pests.

Resistance: The mode of action includes a physical element and resistance is less likely to arise with Bug Oil than pesticides relying on chemical effects alone.

[COMPATIBILITY]

Bug Oil may be tank-mixed with a variety of plant protection products and foliar nutrient sprays providing that the application timing is correct for both Bug Oil and the partner(s) in the mixture.

The products should be added separately to the bulk of water in the spray tank. Continuous agitation should be maintained and the product used immediately after mixing.

For further information on the approval status of mixture partners, consult Plant Impact.

If a tank-mix with another product is required, add the Bug Oil to the spray tank first and ensure that it is fully dispersed before adding subsequent products. PLEASE SEE THE MIXING SCHEDULE ABOVE.

Ensure that the label recommendations are followed for the partner product.]

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal.

PESTICIDE STORAGE

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed.

Store in original container and out of the reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Non-refillable container. Do not reuse or refill this container.

If empty: Place in trash or offer for recycling if available.

If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

[NOTICE TO BUYER]

[Note: Plant Impact warrants that this product complies with the specifications expressed in this label. To the extent consistent with applicable law, Plant Impact makes no other warranties, and disclaims all other warranties, express or implied, including but not limited to warranties of merchantability and fitness for the intended purpose. To the extent consistent with applicable law, Plant Impact's liability or default, breach or failure under this label shall be limited to the amount of the purchase price. To the extent consistent with applicable law, Plant Impact shall have no liability for consequential damages.]

[Warranty and Disclaimer Statement]

[The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Such risks may arise from weather conditions, soil factors, off-target movement, unconventional farming techniques, the presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of Plant Impact, and can cause crop injury, injury to non-target crops or plants, ineffectiveness of the product, or other unintended consequences. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

Plant Impact warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal conditions. This warranty does not extend to the use of this product contrary to label instructions or under conditions not reasonably foreseeable to Plant Impact, and is subject to the inherent risks described above.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PLANT IMPACT DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PLANT IMPACT, MANUFACTURER, AND SELLER DISCLAIM AND SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE, OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES, AND THE USER AND BUYER WAIVE ANY RIGHT THAT THEY MAY HAVE TO SUCH DAMAGES. NO AGENT, REPRESENTATIVE OR EMPLOYEE OF PLANT IMPACT IS AUTHORIZED TO MAKE ANY WARRANTY, GUARANTEE OR REPRESENTATION BEYOND THOSE CONTAINED HEREIN OR TO MODIFY THE WARRANTIES CONTAINED HEREIN, TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE TOTAL LIABILITY OF PLANT IMPACT, MANUFACTURER, AND SELLER, SHALL BE LIMITED TO THE PURCHASE PRICE PAID, OR AT PLANT IMPACT'S ELECTION, THE REPLACEMENT OF THE PRODUCT.]

Manufactured by:

Plant Impact plc
Rothamsted, West Common, Harpenden
Hertfordshire, AL5 2JQ
United Kingdom
Tel. +44 (0) 1582 465540

[Batch Code]

[Some or all crops from Appendix I may be listed on the final marketed product label.]

APPENDIX I

COTTON

ROOT AND TUBER VEGETABLES - CROP GROUP 1

Arracacha (*Arracacia xanthorrhiza*)
Arrowroot (*Maranta arundinacea*)
Artichoke, Chinese (*Stachys affinis*)
Artichoke, Jerusalem (*Helianthus tuberosus*)
Beet, garden (*Beta vulgaris*)
Beet, sugar (*Beta vulgaris*)
Burdock, edible (*Arctium lappa*)
Canna, edible (Queensland arrowroot) (*Canna indica*)
Carrot (*Daucus carota*)
Cassava, bitter and sweet (*Manihot esculenta*)
Celeriac (celery root) (*Apium graveolens* var. *rapaceum*)
Chayote (root) (*Sechium edule*)
Chervil, turnip-rooted (*Chaerophyllum bulbosum*)
Chicory (*Cichorium intybus*)
Chufa (*Cyperus esculentus*)
Dasheen (taro) (*Colocasia esculenta*)
Ginger (*Zingiber officinale*)
Ginseng (*Panax quinquefolius*)
Horseradish (*Armoracia rusticana*)
Leren (*Calathea allouia*)
Parsley, turnip-rooted (*Petroselinum crispum* var. *tuberosum*)
Parsnip (*Pastinaca sativa*)
Potato (*Solanum tuberosum*)
Radish, oriental (daikon) (*Raphanus sativus* subvar. *Longipinnatus*)
Rutabaga (*Brassica campestris* var. *napobrassica*)
Salsify (oyster plant) (*Tragopogon porrifolius*)
Salsify, black (*Scorzonera hispanica*)
Salsify, Spanish (*Scolymus hispanicus*)
Skirret (*Sium sisarum*)
Sweet potato (*Ipomoea batatas*)
Tanier (cocoyam) (*Xanthosoma sagittifolium*)
Turmeric (*Curcuma longa*)
Turnip (*Brassica rapa* var. *rapa*)
Yam bean (*Jicama*, *Manioc* pea) (*Pachyrhizus* spp.)
Yam, true (*Dioscorea* spp.)

LEAVES OF ROOT AND TUBER VEGETABLES (HUMAN FOOD OR ANIMAL FEED) GROUP -

COMMODITIES - CROP GROUP 2

Beet, garden (*Beta vulgaris*)
Beet, sugar (*Beta vulgaris*)
Burdock, edible (*Arctium lappa*)
Carrot (*Daucus carota*)
Cassava, bitter and sweet (*Manihot esculenta*)
Celeriac (celery root) (*Apium graveolens* var. *rapaceum*)
Chervil, turnip rooted (*Chaerophyllum bulbosum*)
Chicory (*Cichorium intybus*)
Dasheen (taro) (*Colocasia esculenta*)
Parsnip (*Pastinaca sativa*)

Radish (*Raphanus sativus*)
 Radish, oriental (daikon) (*Raphanus sativus* subvar. *longipinnatus*)
 Rutabaga (*Brassica campestris* var. *napobrassica*)
 Salsify, black (*Scorzonera hispanica*)
 Sweet potato (*Ipomoea batatas*)
 Tanier (cocoyam) (*Xanthosoma sagittifolium*)
 Turnip (*Brassica rapa* var. *rapa*)
 Yam, true (*Dioscorea* spp.)

BULB VEGETABLES (Alliums spp.) GROUP - COMMODITIES - CROP GROUP 3

Chive, fresh leaves (*Allium schoenoprasum* L.)
 Chive, Chinese, fresh leaves (*Allium tuberosum* Rottier ex Spreng)
 Daylily, bulb (*Hemerocallis fulva* (L.) L. var. *fulva*)
 Elegans hosta (*Hosta Sieboldiana* (Hook) Engl)
 Fritillaria, bulb (*Fritillaria L. fritillaria*)
 Garlic, bulb (*Allium sativum* L. var. *sativum*) (A. *sativum* Common Garlic Group)
 Garlic, great headed, bulb (*Allium ampeloprasum* L. var. *ampeloprasum*) (A. *ampeloprasum* Great Headed Garlic Group)
 Garlic, Serpent, bulb (*Allium sativum* var. *ophioscorodon* or A. *sativum* Ophioscorodon Group)
 Kurrat (*Allium kurrat* Schweinf. Ex. K. Krause or A. *ampeloprasum* Kurrat Group)
 Lady's leek (*Allium cernuum* Roth)
 Leek (*Allium porrum* L. (syn: A. *ampeloprasum* L. var. *porrum* (L.) J. Gay) (A. *ampeloprasum* Leek Group)
 Leek, wild (*Allium tricoccum* Aiton)
 Lily, bulb (*Lilium* spp. (*Lilium Leichtlinii* var. *maximowiczii*, *Lilium lancifolium*))
 Onion, Beltsville bunching (*Allium x proliferum* (Moench) Schrad.) (syn: *Allium fistulosum* L. x A. *cepa* L.)
 Onion, bulb (*Allium cepa* L. var. *cepa*) (A. *cepa* Common Onion Group)
 Onion, Chinese, bulb (*Allium chinense* G. Don.) (syn: A. *bakeri* Regel)
 Onion, fresh (*Allium fistulosum* L. var. *caespitosum* Makino)
 Onion, green (*Allium cepa* L. var. *cepa*) (A. *cepa* Common Onion Group)
 Onion, macrostem (*Allium macrostemom* Bunge)
 Onion, pearl (*Allium pomom* var. *sectivum* or A. *ampeloprasum* Pearl Onion Group)
 Onion, potato, bulb (*Allium cepa* L. var. *aggregatum* G. Don.) (A. *cepa* Aggregatum Group)
 Onion, tree, tops (*Allium x proliferum* (Moench) Schrad. Ex Wild.) (syn: A. *cepa* var. *proliferum* (Moench) Regel. A. *cepa* L. var. *bulbiferum* L.H. Bailey, A. *cepa* L. var. *Viviparm* (Metz) Alef.)
 Onion, Welsh, tops (*Allium fistulosum* L.)
 Shallot, fresh leaves (*Allium cepa* var. *aggregatum* G. Don.)
 Cultivars, varieties, and/or hybrids of these.

LEAFY VEGETABLES (EXCEPT BRASSICA VEGETABLES) GROUP - CROP GROUP 4

Amaranth (leafy amaranth, Chinese Spinach, tampaia) (*Amaranthus* spp.)
 Arugula (Roquette) (*Eruca sativa*)
 Cardoon (*Cynara cardunculus*)
 Celery (*Apium graveolens* var. *dulce*)
 Celery, Chinese (*Apium graveolens* var. *secalinum*)
 Celtuce (*Lactuca sativa* var. *Angustana*)
 Chervil (*Anthriscus cerefolium*)
 Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. *coronarium*)
 Chrysanthemum, garland (*Chrysanthemum coronarium* var. *spaliosum*)
 Corn salad (*Valerianella locusta*)
 Cress, garden (*Lepidium sativum*)
 Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*)
 Dandelion (*Taraxacum officinale*)
 Dock (sorrel) (*Rumex* spp.)

Endive (escarole) (*Cichorium endivia*)
 Fennel, Florence (*finachio*) (*Foeniculum vulgare* Azoricum Group)
 Lettuce, head and leaf (*Lactuca sativa*)
 Orach (*Atriplex hortensis*)
 Parsley (*Petroselinum crispum*)
 Purslane, garden (*Portulaca oleracea*)
 Purslane, Winter (*Montia perfoliata*)
 Radicchio (red chicory) (*Cichorium intybus*)
 Rhubarb (*Rheum rhabarbarum*)
 Spinach (*Spinacia oleracea*)
 Spinach, New Zealand (*Tetragonia tetragonoides*, *T. Expansa*)
 Spinach, vine (Malabar spinach, Indian spinach) (*Baselia alba*)
 Swiss chard (*Beta vulgaris* var. *cicla*)

BRASSICA (COLE) LEAFY VEGETABLES - CROP GROUP 5

Broccoli (*Brassica oleracea* var. *botrytis*)
 Broccoli, Chinese (*gai lon*) (*Brassica alboglabra*)
 Broccoli raab (*rapini*) (*Brassica campestris*)
 Brussel sprouts (*Brassica oleracea* var. *gemmifera*)
 Cabbage (*Brassica oleracea*)
 Cabbage, Chinese (*bok choy*) (*Brassica chinensis*)
 Cabbage, Chinese (*napa*) (*Brassica pekinensis*)
 Cabbage, Chinese mustard (*gai choy*) (*Brassica campestris*)
 Cauliflower (*Brassica oleracea* var. *botrytis*)
 Cavalo broccolo (*Brassica oleracea* var. *Botrytis*)
 Collards (*Brassica oleracea* var. *acephala*)
 Kale (*Brassica oleracea* var. *Acephala*)
 Kohlrabi (*Brassica oleracea* var. *gongylodes*)
 Mizuna (*Brassica rapa Japonica* Group)
 Mustard greens (*Brassica juncea*)
 Mustard spinach (*Brassica rapa Perviridis* Group)
 Rape greens (*Brassica napus*)

LEGUME VEGETABLES (SUCCULENT OR DRIED) - CROP GROUP 6

Bean (*Lupinus spp.*) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin)
 Bean (*Phaseolus spp.*) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean)
 Bean (*Vigna spp.*) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean)
 Broad bean (*fava bean*) (*Vicia faba*)
 Chickpea (*garbanzo bean*) (*Cicer arietinum*)
 Guar (*Cyamopsis tetragonoloba*)
 Jackbean (*Canavalia ensiformis*)
 Labfab bean (*hyacinth bean*) (*Lablab purpureus*)
 Lentil (*Lena esculenta*)
 Pea (*Pisum spp.*) (includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, Green pea, snow pea, sugar snap pea)
 Pigeon pea (*Cajanus cajan*)
 Soybean (*Glycine max*)
 Soybean (immature seed) (*Glycine max*)
 Sword bean (*Canavalia gladiata*)

FOLIAGE OF LEGUME VEGETABLE GROUP - CROP GROUP 7

Any cultivar of bean (*Phaseolus spp.*) and field pea (*Pisum spp.*) and soybean (*Glycine max*)

FRUITING VEGETABLES (EXCEPT CUCURBITS) - COMMODITIES - CROP GROUP 8

Eggplant (*Bolanum melongena*)

Groundcherry (*Physalis spp.*)

Pepino (*Solanum muricatum*)

Pepper (*Capsicum spp.*) (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper)

Tomatillo (*Physalis ixocarpa*)

Tomato (*Lycopersicon esculentum*)

CUCURBIT VEGETABLES - CROP GROUP 9

Chayote (fruit) (*Sechium edule*)

Chinese waxgourd (Chinese preserving melon) (*Benincasa hispida*)

Citron melon (*Citrullus lanatus* var. *citroides*)

Cucumber (*Cucumis sativus*)

Gherkin (*Cucumis angura*)

Gourd, edible (*Lagenaria spp.*) (Includes hyotan, cuczza); (*Luffa acutangula*, *L. cylindrica*) (includes hechima, Chinese okra)

Momordica spp. (includes balsam Apple, balsam pear, bitter melon, Chinese Cucumber)

Muskmelon (hybrids and/or cultivars of *Cucumis melo*) (includes true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon)

Pumpkin (*Curcubita spp.*)

Squash, summer (*Cucurbita pepo* var. *melopepo*) (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini)

Squash, winter (*Cucurbita maxima*; *C. moschata*) (includes butternut squash, Calabaza, Hubbard squash); (*C. mixta*; *C. pepo*) (includes acorn squash, spaghetti squash)

Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

CITRUS FRUITS (CITRUS spp., FORTUNELLA spp.) GROUP - COMMODITIES - CROP GROUP 10

Calamondin (*Citrus milis* x *Citrofortunella mitis*)

Citrus citron (*Citrus medica*)

Citrus hybrids (*Citrus spp.*) (includes chironja, tangelo, tangor)

Grapefruit (*Citrus paradisi*)

Kumquat (*Fortunella spp.*)

Lemon (*Citrus jambhiri*, *Citrus limon*)

Lime (*Citrus aurantiifolia*)

Mandarin (tangerine) (*Citrus reticulata*)

Orange, sour (*Citrus aurantium*)

Orange, sweet (*Citrus sinensis*)

Pummelo (*Citrus grandis*, *Citrus maxima*)

Satsuma mandarin (*Citrus unshiu*)

POME FRUITS GROUP - COMMODITIES - CROP GROUP 11

Apple (*Malus domestica*)

Crabapple (*Malus spp.*)

Loquat (*Eriobotrya japonica*)

Mayhaw (*Crataegus aestivalis*, *C. opaca*. And *C. rufula*)

Pear (*Pyrus communis*)

Pear, oriental (*Pyrus pyrifolia*)

Quince (*Cydonia oblonga*)

STONE FRUITS GROUP - COMMODITIES - CROP GROUP 12

Apricot (*Prunus amemiac*)

Cherry, sweet (*Prunus avium*)

Cherry, tart (*Prunus cerasus*)
 Nectarine (*Prunus persica*)
 Peach (*Prunus persica*)
 Plum (*Prunus domestica*, *Prunus spp.*)
 Plum, Chickasaw (*Prunus angustifolia*)
 Plum, Damson (*Prunus domestica* spp. *Insititia*)
 Plum, Japanese (*Prunus salicina*)
 Plumcot (*Prunus ameniaca* × *P. domestica*)
 Prune (fresh) (*Prunus domestica*, *Prunus spp.*)

BERRIES GROUP - CROP GROUP 13

Blackberry (*Rubus eubatus*) (including bingleberry, black satin berry, boysenberry, Cherokee blackberry, Chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Himalayaberry, hullberry, Lavacaberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectarberry, ciallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these)
 Blueberry (*Vaccinium spp.*)
 Currant (*Ribes spp.*)
 Elderberry (*Sambucus spp.*)
 Gooseberry (*Ribes spp.*)
 Huckleberry (*Gaylussacia spp.*)
 Loganberry (*Rubus loganobaccus*)
 Raspberry, black and red (*Rubus occidentalis*, *Rubus strigosus*, *Rubus idaeus*)

BERRY AND SMALL FRUIT CROP GROUP - CROP GROUP 14

Amur river grape (*Vitis amurensis* Rupr.)
 Aronia berry (*Aronia spp.*)
 Bayberry (*Myrica spp.*)
 Bearberry (*Arctostaphylos uva-ursi*)
 Bilberry (*Vaccinium myrtillus* L.)
 Blackberry (*Rubus spp.*) (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, Lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee dewberry, tayberry, youngberry, zarzamora and cultivars, varieties and/or hybrids of these.)
 Blueberry, highbush (*Vaccinium spp.*)
 Blueberry, lowbush (*Vaccinium angustifolium* Aiton)
 Buffalo currant (*Ribes aureum* Pursh)
 Buffaloberry (*Shepherdia argentea* (Pursh) Nutt.)
 Che (*Cudrania tricuspidata* Bur. Ex Lavallee)
 Chilean guava (*Myrtus ugni* Mol.)
 Chokecherry (*Prunus virginiana* L.)
 Cloudberry (*Rubus chamaemorus* L.)
 Cranberry (*Vaccinium macrocarpon* Aiton)
 Currant, black (*Ribes nigrum* L.)
 Currant, red (*Ribes rubrum* L.)
 Elderberry (*Sambucus spp.*)
 European barberry (*Berberis vulgaris* L.)
 Gooseberry (*Ribes spp.*)
 Grape (*Vitis spp.*)
 Highbush cranberry (*Viburnum opulus* L. var. *Americanum* Aiton)

Honeysuckle, edible (*Lonicera caerulea* L. var. *emphyllocalyx* Nakai, *Lonicera caerulea* L. var. *edulis* Turcz. Ex herder)
 Huckleberry (*Gaylussacia* spp.)
 Jostaberry (*Ribes* × *nidigrolaria* Rud. Bauer and A. Bauer)
 Juneberry (Saskatoon berry) (*Amelanchier* spp.)
 Kiwifruit, fuzzy (*Actinidia deliciosa* A. Chev.) (C.F. Liang and A.R. Fergusons, *Actinida chinensis* Planch)
 Kiwifruit, hardy (*Actinidia arguta* (Siebold and Zucc.) Planch ex Miq)
 Lingonberry (*Vaccinium vitis-idaea* L.)
 Maypop (*Passiflora incarnate* L.)
 Mountain pepper berries (*Tasmannia lanceolata*) (Poir.) A.C. Sm.
 Mulberry (*Morus* spp.)
 Muntries (*Kunzea pornifera* F. Muell)
 Native currant (*Acrotriche depressa* R.BR.)
 Partridgeberry (*Mitchella repens* L.)
 Phalsa (*Grewia subinaequalis* DC)
 Pinchberry (*Prunus pensylvanica* L.f.)
 Raspberry, black and red (*Rubus* spp.)
 Riberry (*Syzygium luehmannii*)
 Salal (*Gaultheria shallon* Pursh)
 Schisandra berry (*Schisandra chinensis* (Turcz.) Baill.)
 Sea buckthorn (*Hippophae rhamnoides* L.)
 Serviceberry (*Sorbus* spp.)
 Strawberry (*Fragaria* × *ananassa* Duchesne)
 Wild raspberry (*Rubus muelleri* Lefevre ex P.J. Mull)
 Cultivars, varieties and/or hybrids of these.

TREE NUTS - COMMODITIES - CROP GROUP 14

Almond (*Prunus dulcis*)
 Beech nut (*Fagus* spp.)
 Brazil nut (*Bertholletia excelsa*)
 Butternut (*Juglans cinerea*)
 Cashew (*Anacardium occidentale*)
 Chestnut (*Castanea* spp.)
 Chinquapin (*Castanea pumila*)
 Filbert (hazelnut) (*Corylus* spp.)
 Hickory nut (*Carya* spp.)
 Macadamia nut (bush nut) (*Macadamia* spp.)
 Pecan (*Carya illinoensis*)
 Walnut, black and English (Persian) (*Juglans* spp.)

CEREAL GRAINS - COMMODITIES - CROP GROUP 15

Barley (*Hordeum* spp.)
 Buckwheat (*Fagopyrum esculentum*)
 Corn (*Zea mays*)
 Millet, pearl (*Pennisetum glaucum*)
 Millet, proso (*Panicum millaceum*)
 Oats (*Avena* spp.)
 Popcorn (*Zea mays* var. *evarta*)
 Rice (*Oryza sativa*)
 Rye (*Secale cereale*)
 Sorghum (milo) (*Sorghum* spp.)
 Teosinte (*Euchlaena mexicana*)
 Triticale (*Triticum-Secale* hybrids)
 Wheat (*Triticum* spp.)

Wild rice (*Zizania aquatica*)

FORAGE, FODDER AND STRAW OF CEREAL GRAINS GROUP - CROP GROUP 16

Forage, fodder, and straw of all commodities included in the group cereal grains group

GRASS FORAGE, FODDER, AND HAY GROUP - CROP GROUP 17

Any grass, Gramineae family (either green or cured) except sugarcane and those included in the cereal grains group, that will be fed or grazed by livestock, all pasture and range grasses and grasses grown for hay or silage.

NONGRASS ANIMAL FEEDS (FORAGE, FODDER, STRAW, AND HAY) GROUP - CROP GROUP 18

Alfalfa (*Medicago sativa* subsp. *sativa*)

Bean, velvet (*Mucuna pruriens* var. *utilis*)

Clover (*Trifolium* spp., *Melilotus* spp.)

Kudzu (*Pueraria lobata*)

Lespedeza (*Lespedeza* spp.)

Lupin (*Lupinus* spp.)

Sainfoin (*Onobrychis vicifolia*)

Trefoil (*Lotus* spp.)

Vetch (*Vicia* spp.)

Vetch, Crown (*Coronilla varia*)

Vetch, milk (*Astragalus* spp.)

HERBS AND SPICES GROUP - CROP GROUP 19

Allspice (*Pimenta dioica*)

Angelica (*Angelica archangelica*)

Anise, (anise seed) (*Pimpinella anisum*)

Anise, star (*Illicium verum*)

Annatto (seed) (*Bixaceae* spp.)

Balm (lemon balm) (*Melissa officinalis*)

Basil (*Ocimum basilicum*)

Borage (*Borago officinalis*)

Burnet (*Sanguisorba minor*)

Camomile (*Anthemis nobilis*)

Caper bulbs (*Cappanis spinosa*)

Caraway (*Carum carvi*)

Caraway, black (*Nigella sativa*)

Cardamom (*Elettaria cardamomum*)

Cassia bark (*Cinnamomum aromaticum*)

Cassia buds (*Cinnamomum aromaticum*)

Catnip (*Nepeta cataria*)

Celery seed (*Apium graveolens*)

Chervil (dried) (*Anthriscus cerefolium*)

Chive (*Allium schoenoprasum*)

Chive, Chinese (*Allium tuberosum*)

Cinnamon (*Cinnamomum verum*)

Clary (*Salvia sclarea*)

Clove buds (*Eugenia caryophyllata*)

Coriander (cilantro or Chinese parsley) (leaf) (*Coriandrum sativum*)

Coriander (cilantro) (seed) (*Coriandrum sativum*)

Costmary (*Chrysanthemum balsamita*)

Culantro (leaf) (*Eryngium foetidum*)

Culantro (seed) (*Eryngium foetidum*)

Cumin (*Cuminum cyminum*)

Curry (leaf) (*Murraya koenigii*)

Dill (dillweed) (*Anethum graveolens*)
 Dill (seed) (*Anethum graveolens*)
 Fennel (common) (*Foeniculum vulgare*)
 Fennel, Florence (seed) (*Foeniculum vulgare* Azoricum Group)
 Fenugreek (*Trigonella foenumgraecum*)
 Grains of paradise (*Aframomum melegueta*)
 Horehound (*Marrubium vulgare*)
 Hyssop (*Hyssopus officinalis*)
 Juniper berry (*Juniperus communis*)
 Lavender (*Lavandula officinalis*)
 Lemongrass (*Cymbopogon citratus*)
 Lovage (leaf) (*Levisticum officinale*)
 Lovage (seed) (*Levisticum officinale*)
 Mace (*Myristica fragrans*)
 Marigold (*Calendula officinalis*)
 Marjoram (*Origanum* spp.) (includes sweet or annual marjoram, wild marjoram or oregano, and pot marjoram)
 Mustard (seed) (*Brassica juncea*, *B. hirta*, *B. nigra*)
 Nasturtium (*Tropaeolum majus*)
 Nutmeg (*Myristica fragrans*)
 Parsley (dried) (*Petroselinum crispum*)
 Pennyroyal (*Mentha pulegium*)
 Pepper, black (*Piper nigrum*)
 Pepper, white
 Poppy (seed) (*Papaver somniferum*)
 Rosemary (*Rosemarinus officinalis*)
 Rue (*Ruta graveolens*)
 Saffron (*Crocus sativus*)
 Sage (*Salvia officinalis*)
 Savory, summer and winter (*Satureja* spp.)
 Sweet bay (bay leaf) (*Laurus nobilis*)
 Tansy (*Tanacetum vulgare*)
 Tarragon (*Artemisia dracunculus*)
 Thyme (*Thymus* spp.)
 Vanilla (*Vanilla planifolia*)
 Wintergreen (*Gaultheria procumbens*)
 Woodruff (*Galium odorata*)
 Wormwood (*Artemisia absinthium*)

EDIBLE FUNGI GROUP - COMMODITIES - CROP GROUP 21

Blewitt (*Lepista nuda*)
 Bunashimeji (*Hypsizygus marmmoreus*)
 Chinese mushroom (*Volvariella volvacea*) (Bull.) Singer
 Enoki (*Fiammulina velutipes*) (Curt.) Singer
 Hime-Matsutake (*Agaricus blazei*) Murill
 Hirneola (*Auricularia auricular*)
 Maitake (*Grifola frondosa*)
 Morel (*Morchella* spp.)
 Nameko (*Pholiota nameko*)
 Net Bearing (*Dictyophora*)
 Oyster mushroom (*Pleurotus* spp.)
 Pom Pom (*Hericium erinaceus*)
 Reishi mushroom (*Ganoderma lucidum* (Leyss. Fr.) Karst.)
 Rodman's Agaricus (*Agaricus bitorquis*) (Quel.) Saccardo
 Shitake mushroom (*Lentinula edodes* (Berk.) Pegl.)

Shimeji (*Tricholoma conglabatum*)
Stropharia (*Stropharia spp.*)
Truffle (*Tuber spp.*)
White button mushroom (*Agaricus bisporous* (Lange) Imbach)
White Jelly Fungi (*Tremella fuciformis*)

EPA		United States Environmental Protection Agency Washington, DC 20460	<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other:	OPP Identifier Number
Application for Pesticide - Section I				
1. Company/Product Number 85937-2		2. EPA Product Manager ANDREW BRYCELAND		3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Bug Oil Food Use, Alternate Brand Name:NERIOtm		PM#		
5. Name and Address of Applicant (Include ZIP Code) PLANT IMPACT plc Rothamsted, West Common, Harpenden, Hertfordshire, AL5 2JQ United Kingdom <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(I), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____		
Section - II				
<input type="checkbox"/> Amendment - Explain below. <input type="checkbox"/> Final printed labels in response to Agency letter dated _____ <input type="checkbox"/> Resubmission in response to Agency letter dated _____ <input type="checkbox"/> "Me Too" Application <input checked="" type="checkbox"/> Notification - Explain below. <input type="checkbox"/> Other - Explain below				
Explanation: Use additional page(s) if necessary. (For Section I and Section II.) Alternate Brand Name NERIOtm. This notification is consistent with the provisions of PRN-98-10 and EPA regulations at 40 CFR 152.46 and no other changes have been made to the label or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PRN-98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.				
Section - III				
1. Material This Product Will Be Packaged In:				
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" No. per Unit Packaging wgt. container	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" No. per Package wgt. container	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify)	
*Certification must be submitted				
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gallon, 1 liter		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On labeling accompanying product
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled				
Section - IV				
1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application)				
Name M. SAM BONDURANT		Title CONSULTANT		Telephone No. (Include Area Code) 901-751-0933 OR 901-490-4755
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.				6. Date Application Received (Stamp)
2. Signature 		3. Title CONSULTANT		
4. Typed Name M. SAM BONDURANT		5. Date SEPTEMBER 16, 2016		

Via Federal Express Overnight TRK#7772 5729 6463

September 16, 2016

U.S. Environmental Protection Agency
Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
Room S4900, One Potomac Yard
2777 Crystal Drive Arlington, VA 22202

Attn: Andrew Bryceland, Team Leader
Biochemical Pesticide Branch

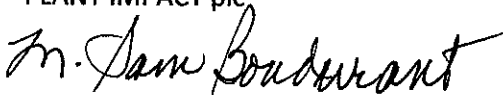
Dear Mr. Bryceland:

SUBJECT: Plant Impact plc, EPA Reg. No. 85937-2
Bug Oil Food Use, Notification of Alternate Brand Name: NERIO™

Enclosed are the following documents for your consideration:

- EPA Form 8570-1 Notification of Alternate Brand Name
- 1 – Clean copy of Bug Oil Food Use Master Label, Commercial and Residential
- 1 – Marked up copy of Bug Oil Food Use Master Label – Commercial and Residential showing Alternate Brand Name – NERIO™
- Stamped, self-addressed postcard for your use in notifying acceptance of Alternate Brand Name Notification

Sincerely on behalf of
PLANT IMPACT plc



M. Sam Bondurant
Regulatory Consultant
Ph. 901.751.0989 or 901.496.4755

Enclosures: As Stated

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

26th September 2016

Subject: **Notice of Representation**

To Louis Vaughn (Fax: +1-703-305-7670);

By means of this document,

Plant Impact plc
West Common, Harpenden
Hertfordshire, AL5 2JQ
United Kingdom

confirms that:

M. Sam Bondurant
Bondurants Consulting LLC
2502 Cedar Ridge Drive
Germantown, TN 38138 USA
(901) 751-0989
sam@bondurantsllc.com

has been engaged to represent Plant Impact plc before the EPA as required for the purpose of obtaining registration of pesticide products (including Bug Oil; EPA registration numbers 85937-1 and 85937-2).

M. Sam Bondurant is an added EPA agent and the effective date of this change is 25th July 2016. Any listed current EPA agents are to remain active.

Yours sincerely,

Plant Impact Plc



Dr. Nicholas Moon
Global Regulatory Manager


 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 WASHINGTON, D.C. 20460

FEB 05 2015

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Plant Impact plc
 c/o James Messina
 Exponent
 1150 Connecticut Avenue, NW
 Suite 1100
 Washington, DC 20036

Subject: Submission of Storage Stability and Corrosion Characteristics studies to satisfy term of registration.
 Product Names and EPA Reg. Nos.: Bug Oil Ornamental (EPA Reg. No. 85937-1) and Bug Oil Food Use (EPA Reg. No. 85937-2)
 Your submissions dated November 4, 2014
 Decision Numbers: 497617 and 497743

Dear Mr. Messina:

The submissions of the Storage Stability (OCSPP Guideline No. 830.6317) and Corrosion Characteristics (OCSPP Guideline No. 830.6320) studies referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, have been received and reviewed, and the studies are acceptable. You have satisfied OCSPP guideline studies 830.6317 and 830.6320 as required and outlined in your Notice of Pesticide Registrations dated March 27, 2012.

Enclosed are the new Notice of Pesticide Registrations for your products. Should you have any questions, you may contact Mr. Colin Walsh directly at (703) 308-0298 or via email at walsh.colin@epa.gov.

Sincerely,

Linda A. Hollis, Chief
 Biochemical Pesticides Branch
 Biopesticides and Pollution
 Prevention Division (7511P)

CONCURRENCES

SYMBOL	7511P							
SURNAME	Walsh							
DATE	1/29/15							



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division (7511C)
1200 Pennsylvania Avenue NW
Washington, DC 20460

EPA Reg. Number:

85937-2

Date of Issuance:

FEB 05 2015

Term of Issuance:

Unconditional

Name of Pesticide Product:

Bug Oil Food Use

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

Plant Impact plc
Rothamsted
West Common
Harpenden
Hertfordshire
AL5 2JQ
United Kingdom

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on her motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This registration does not eliminate the need for continual reassessment of the pesticide. If the EPA determines at any time that additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under section 3(c)(2)(B) of FIFRA.

This product is unconditionally registered in accordance with FIFRA Sec. 3(c)(5) and is subject to the following terms:

1. Submit and/or cite all data required for registration of your product under FIFRA section 3(c)(5) and section 4 when the Agency requires all registrants of similar products to submit such data.
2. Revise the EPA Registration Number to read, "EPA Reg. No. 85937-2."
3. Submit three (3) copies of the revised final printed labeling before you release the product for shipment.

A stamped copy of the label and an A-79 Enclosure are enclosed for your records.

Signature of Approving Official:

Date:

2/5/14

Linda A. Hollis, Chief

Biochemical Pesticides Branch

CONCURRENCES

SYMBOL

Biopesticides and Pollution Prevention Division

SURNAME

EPA Form 8570-6

DATE

1/29/15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

DATE: January 20, 2015

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

SUBJECT: Science Review In Support of the Registration of Bug Oil Food Use containing Canola Oil, Tagetes Oil, Thyme Oil and Wintergreen Oil as its active ingredients.

Decision Number: 497743
DP Number: 424280
EPA File Symbol Number: 85937-2
Chemical Class: Biochemical
PC Code: 011332, 176602, 597800, 176601, respectively
CAS Number: 120962-03-0, 8016-84-0, 8007-46-3, 68917-75-9, respectively
Tolerance Exemptions: 40 CFR 180.950 for all active ingredients
MRID Numbers: 49505501

FROM: Angela L. Gonzales, Biologist /s/
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

TO: Colin Walsh, M.S., Regulatory Action Leader
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

ACTION REQUESTED

In response to the request for additional information discussed in the memorandum from A.L. Gonzales to C. Walsh dated 2/21/12 and relayed to the applicant as a condition of registration for the product, the applicant has submitted a corrosion characteristics study in MRID 49505501.

RECOMMENDATIONS AND CONCLUSIONS

1. The product chemistry submission is ACCEPTABLE.

a. The submitted corrosion characteristics data are acceptable. No evidence of corrosion or changes to the product packaging were observed during the 12-month study.

STUDY SUMMARY

Product Chemistry (MRID 49505501)

In response to the Agency's concern regarding alterations (paneling) in the product packing observed in the storage stability and corrosion characteristics studies originally submitted to the Agency (MRIDs 48339001 and 48649808), the applicant conducted a new corrosion characteristics study on the product which has been packaged in alternative material with the headspace nitrogen-purged. Refer to the memorandum from A. L. Gonzales to C. Walsh dated 2-21-12 for more information. The product is now packaged in a heavy-weight Coex bottle. During packaging, the headspace is nitrogen-purged, which should eliminate oxidation of the active ingredients. The applicant indicated previously to the Agency that oxidation of the active ingredients may be the cause of the changes to the container observed in the previous corrosion characteristics studies. In the new study, the product was stored under typical warehouse conditions. The physical appearance of the test substance was observed every three months and the product packaging was observed monthly. Over the 12-month period, there were no observations of changes to the product packaging or to the test substance.

cc: Angela L. Gonzales, Colin Walsh, BPPD Science Review File, IHAD/ARS
A. L. Gonzales, FT, PY-S: 1/20/15

DATA PACKAGE BEAN SHEET

Date: 03-Dec-2014

Page 1 of 3

Decision #: 497743

DP #: (424280)

NON PRIA

Parent DP #:

Submission #: 960063

E-Sub #:

*** Registration Information ***

Registration: 85937-2 - BUG OIL FOOD USE

Company: 85937 - PLANT IMPACT PLC.

Risk Manager: RM 91 - Andrew Bryceland - (703) 305-6928 Room# PY1 S-8911

Risk Manager Reviewer: Colin Walsh CWALSH

Sent Date: 05-Nov-2014

PRIA Due Date: 02-Feb-2015

Edited Due Date: _____

Type of Registration: Product Registration - Section 3

Action Desc: (300) LABEL REVISION;NO DATA REQUIRED;

Ingredients: See page 3

*** Data Package Information ***

Expedite: ☐ Yes ☒ No

Date Sent: 03-Dec-2014

Due Back: _____

DP Ingredient: See page 3

DP Title: _____

CSF Included: ☐ Yes ☒ No

Label Included: ☐ Yes ☒ No

Parent DP #: _____

Assigned To

Date In

Date Out

Organization: BPPD / BPB

Last Possible Science Due Date: 19-Dec-2014

Team Name: RM 91

Science Due Date: _____

Reviewer Name: _____

Sub Data Package Due Date: _____

Contractor Name: _____

*** Studies Sent for Review ***

Printed on Page 2

*** Additional Data Package for this Decision ***

No Additional Data Packages

*** Data Package Instructions ***

Dear Reviewer,

Please review this Storage Stability and Corrosion Characteristics study (MRID 49505501). These data are for both EPA Reg. Nos. 85937-1 and -2.

Science Review due date January 22, 2015.

Fast Track due date February 2, 2015.

OP#: (424280)

*** Studies Sent for Review ***

Decision#: (497743)

MRID	MRID Status	Citation/Reference	Guideline	86-5 Status
49505501		Lenyk, F. (2014) Bug Oil Storage Stability and Corrosion Characteristics. Project Number: PR100/2013/003. Unpublished study prepared by Plant Impact Pilot Laboratory. 27p.	830.6317/Storage stability	Pass (19-Nov-2014)
49505501		Lenyk, F. (2014) Bug Oil Storage Stability and Corrosion Characteristics. Project Number: PR100/2013/003. Unpublished study prepared by Plant Impact Pilot Laboratory. 27p.	830.6320/Corrosion characteristics	Pass (19-Nov-2014)

DP#: (424280)

*** Product and Data Package Ingredients ***

Decision#: (497743)

PC Code	CAS	Ingredient Name
011332	120962-03-0	Canola oil
597800	8007-46-3	Oil of thyme
176601	68917-75-9	Oils, wintergreen
176602	8016-84-0	Oils, Tagetes
176602	8016-84-0	Oils, Tagetes(.6%)
176601	68917-75-9	Oils, wintergreen(.001%)
597800	8007-46-3	Oil of thyme(.6%)
011332	120962-03-0	Canola oil(93.899%)

Receipt for Section 3

S: 960063

Milestone Email:

Regulatory Type: Product Registration - Section 3



Resubmission: ☒ Yes ☐ No

Fee For Service: ☐ Yes ☒ No

Billable: ☐ Yes ☒ No



Print Letter

Enter More Information

Tracking

Application Type: Amendment



Company: 85937 PLANT IMPACT PLC.

Risk Manager: Biologicals & Pollution Prevention Division, PM Team 91



Product #: 85937-2

Product Name: BUG OIL FOOD USE

Override#:

Me Too
Section3:

Me Too Product
Name:

Application Date: 04-Nov-2014



OPP Rec'd Date: 04-Nov-2014



Front End Date: 05-Nov-2014



Risk Manager Send Date: 05-Nov-2014



FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description:

storage stability & corrosion characteristics

New Ingredient

Request Date:

New Ingredient

Received Date:

Form A: ☐

Signature Date

Form B: ☐

Signature Date

Receipt Content

Des

Study

View/Edit

Receipt for Section 3

S: 960053 Milestone Email: [Redacted]

Regulatory Type: Product Registration - Section 3 ☒ ☐

Application Type: Amendment ☒ ☐

Company: 35937 PLANT IMPACT PLC ☒

Risk Manager: Biologicals & Pollution Prevention Division, PM Team 31 ☒

Product #: 35937-2 Product Name: BUG OIL FOOD USE

Me Too Section 3: Me Too Product Name:

Application Date: 04-Nov-2014 ☒ OPP Rec'd Date: 04-Nov-2014 ☒

Front End Date: 05-Nov-2014 ☒ Risk Manager Sent Date: 05-Nov-2014 ☒

FFS Due Date: 02-Feb-2015 Negotiated Due Date:

OPP Target Date:

Receipt Description: ☒ ☐

storage stability & corrosion characteristics

Receipt Content: Study

View/Edit


Print Letter

Enter More Information

Tracking

This submission goes w/ Lucas # 497743

Administrative Materials

EPA United States Environmental Protection Agency Washington, DC 20460		<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number
Application for Pesticide - Section I			
1. Company/Product Number 85937-2		2. EPA Product Manager Linda Hollis	
4. Company/Product (Name) Plant Impact Plc / Bug Oil Food Use		3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted	
5. Name and Address of Applicant (Include ZIP Code) Plant Impact Rothamsted, West Common, Harpenden, Hertfordshire, AL5 2JQ, United Kingdom <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(I), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	
Section II			
<input type="checkbox"/> Amendment - Explain below. <input type="checkbox"/> Resubmission in response to Agency letter dated XX-XX-XXXX <input type="checkbox"/> Notification - Explain below.		<input type="checkbox"/> Final printed labels in response to Agency letter dated XX-XX-XXXX <input type="checkbox"/> "Me Too" Application <input checked="" type="checkbox"/> Other - Explain below.	
Explanation: Use additional page(s) if necessary. (For section I and Section II.) Submission of Storage Stability and Corrosion Characteristics Data Per the Conditions of Registration for Bug Oil Food Use (EPA Reg. No. 85937-2)			
Section III			
1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No *Certification must be submitted	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" Unit Packaging wgt. No. per Container	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" Package wgt. No. per Container	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) Plastic Bag
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container	
		5. Location of Label Directions <input type="checkbox"/> On Can <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Other _____ <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			
Section IV			
1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name James Messina		Title Authorized Representative	
		Telephone No. (Include Area Code) 202-772-4932	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature BY: 		3. Title Authorized Representative	
4. Typed Name: James Messina		5. Date: November 4, 2014	



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTIONPlant Impact plc
c/o James Messina
Exponent
1150 Connecticut Avenue, NW
Suite 1100
Washington, DC 20036

MAR 04 2013

Subject: Request to extend due date for term of registration.
Bug Oil Ornamental (EPA Reg. No. 85937-1)
Bug Oil Food Use (EPA Reg. No. 85937-2)
Your submissions dated December 5, 2012
Decision Numbers: 472652 and 472653

Dear Mr. Messina:

The submissions referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) section 3(c)(5), as amended, have been received and reviewed. In your Notice of Pesticide Registrations dated March 27, 2012, you were instructed to submit Storage Stability (OCSP Guideline No. 830.6317) and Corrosion Characteristics (OCSP Guideline No. 830.6320) studies within one year of the date of your registrations. In your letter dated December 5, 2012, you have requested that the due date for submitting the requested studies be extended to March 27, 2014 in order to provide evidence that a cosmetic affect to the packaging (i.e., paneling) has been corrected. You indicated that Plant Impact plc has worked diligently with their manufacturer and ingredient providers to create small batch sizes of the six proposed amendments to the packaging, the formulation, or a combination of both, and expect to start the one-year studies on December 13, 2012. This letter acknowledges receipt of your request, and your request to extend the due date for the term of registration for both EPA Reg. Nos. 85937-1 and 85937-2 is granted. You must submit the requested Storage Stability and Corrosion Characteristics guideline studies by March 27, 2014.

If these conditions are not complied with, the registrations will be subject to cancellation in accordance with FIFRA section 6(e). Should you have any questions, you may contact Mr. Colin Walsh directly at (703) 308-0298 or via email at walsh.colin@epa.gov.

Sincerely,

Linda A. Hollis, Chief

CONCURRENCE Chemical Pesticides Branch

Biopesticides and Pollution
Prevention Division (7511P)

SYMBOL	7511P						
JRNAME	Walsh						
DATE	2/27/13						

Receipt for Section 3

S: 327687

Reason: ☐ Yes ☒ No

Regulatory Type: ☒ Product Registration - Section 3

Fee For Service: ☒ Yes ☐ No

Application Type: ☒ Miscellaneous Receipt

Billable: ☒ Yes ☐ No

Company: 36997 PLANT IMPACT PLC



Risk Manager: ☒ Biologicals & Pollution Prevention Division, PM Team 91

Product #: 36997-1 Product Name: BUG OIL ORNAMENTAL

Owner:

Me Too Section: Me Too Product Name:

Application Date: 05-Dec-2012 ☒

OPP Rec'd Date: 05-Dec-2012 ☒

Front End Date: 05-Dec-2012 ☒

Risk Manager Send Date: 06-Dec-2012 ☒

FPS Due Date:

Negotiated Due Date:

OPP Target Date:

Print Track: ☐

New Ingredient: ☐

Receipt Description:

Extension requ. to addr. term of registration

Print As: ☐

Signature Date:

Printed: ☐

Signature Date:

Print Letter


Enter More Information

Tracking

Receipt Content	Des
Other	12/5/12 applictr requ

View/Edit

New Ingredient
Request Date:
New Ingredient
Received Date:
Signature Date:

EPA United States Environmental Protection Agency Washington, DC 20460		<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number
Application for Pesticide - Section I			
1. Company/Product Number 85937-1		2. EPA Product Manager Linda Hollis	
4. Company/Product (Name) Plant Impact Plc / Bug Oil Ornamental		3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted	
5. Name and Address of Applicant (Include ZIP Code) Plant Impact Rothamsted, West Common, Harpenden, Hertfordshire, AL5 2JQ, United Kingdom <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(I), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	
Section II			
<input type="checkbox"/> Amendment - Explain below. <input type="checkbox"/> Resubmission in response to Agency letter dated 1-30-2012 <input type="checkbox"/> Notification - Explain below.		<input type="checkbox"/> Final printed labels in response to Agency letter dated XX-XX-XX <input type="checkbox"/> "Me Too" Application <input checked="" type="checkbox"/> Other - Explain below.	
Explanation: Use additional page(s) if necessary. (For section I and Section II.)			
Status Update and Extension Requests for Conditions of Registration			
Section III			
1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No *Certification must be submitted	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" Unit Packaging wgt. No. per Container	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" Package wgt. No. per Container	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) Plastic Bag
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container	
		5. Location of Label Directions <input type="checkbox"/> On Can <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Other _____ <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			
Section IV			
1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name James Messina		Title Authorized Representative	
		Telephone No. (Include Area Code) 212-772-4932	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature BY: 		3. Title Authorized Representative	
4. Typed Name: James Messina		5. Date: December 5, 2012	



December 5, 2012

Linda A. Hollis
Branch Chief
Biochemical Pesticides Branch
Biopesticides and Pollution Prevention Division (BPPD)
U.S. Environmental Protection Agency
One Potomac Yard, Room S-4900
2777 S. Crystal Drive
Arlington, VA 22202

Subject: Status Update and Extension Requests for Conditions of Registration of Bug Oil Food Use (EPA Registration Number 85937-2) and Bug Oil Ornamental (EPA Registration Number 85937-1)

Dear M. Hollis:

On behalf of our client, Plant Impact plc (Plant Impact, Rothamsted, West Common, Harpenden, Hertfordshire, AL5 2JQ, United Kingdom, EPA Company Number 85937), Exponent is submitting this update and request for an extension of the due dates for the conditional data requirements noted in the Notices of Registration of Bug Oil Ornamental and Bug Oil Food Use, dated March 27, 2012. The Notices of Registration indicated that these products are unconditionally registered in accordance with FIFRA Section 3(c)(5) provided the registrant "submit within 1 year after the Date of Registration acceptable data packages for Guideline Studies: Storage Stability study (OPPTS GLN: 830.6317) and Corrosion Characteristics study (OPPTS GLN: 830.6320) for these products". The request for the data requirements is to provide evidence that a cosmetic affect to the packaging of two Bug Oil Formulations (standard and alternative) has been corrected, i.e., paneling, observed after 1 year under warehouse storage conditions. The corrosion characteristics study will be conducted in conjunction with the storage stability study and the combined storage stability and corrosion characteristics report will be submitted to EPA as a single data package upon completion of the combined study.

The purpose of this letter is to request an extension for submission of the data. According to the Notices of Registration, the data submission due date is March 27, 2013. This letter informs the EPA of the testing program progress and current status of the data and requests an extension for submittal of the data package. The enclosed table (Exhibit 1) lists the data requirements, the progress for testing, current status and the specified and adjusted due dates.

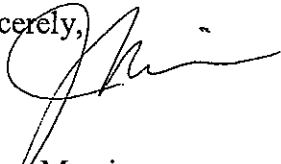
Plant Impact plc has worked diligently and made substantial progress towards completing the data. Three amendments to the packaging, the formulation or a combination of both were proposed to address the packaging cosmetic affect. Plant Impact plc worked with their

manufacturer and ingredient providers to create small batch sizes of the six proposed amendments. A U.S.-based CRO was identified, a contract was signed and the protocol finalized. The samples were shipped from the UK and arrived at the CRO on November 20, 2012 with an estimated study start date of December 13, 2012.

Based on our current planning and the timelines developed with the CRO, Plant Impact plc requests a one year extension (March 27, 2014) to submit the combined OPPTS 830.6317 and 830.6320 guideline study in fulfillment of the conditional data requirements.

Please let me know if you require additional information or if you would like to discuss this matter in further detail. I can be reached at 202-772-4932 or jmessina@exponent.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Messina', written over the word 'Sincerely,'.

James Messina
Authorized Representative of
Plant Impact plc

Enclosures

cc: Dr. Steve Adams, Plant Impact plc
Wendy Hillwalker, Exponent

Exhibit 1
Registration Review Data Requirements
Study Status/Due Dates/Extension Requests

OCSPP Guideline	Assay Name	Test Material	Performing Laboratory	Date Study Anticipated to Commence	Notice of Registration Due Date	Requested Extension Date
830.6317, 830.6320	Combined storage stability and corrosion characteristics study	3 proposed amendments applied to 2 formulations (standard and alternative)	PSL Eurofins, New Jersey, USA	December 13, 2012	March 27, 2013	March 27, 2014

Material Sent for Data Extraction

Reg. # 85937 - E (2)

Description: New Registration

☒ Material(s) Sent to Data Extraction Contractors:

☒ New Stamped Label Dated _____

☐ Notification Dated _____

☐ New CSF(s) Dated _____

☐ Other: _____

☐ Decision #: _____

☐ Other Action/Comments: _____

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Colin Walsh

Phone: _____ Division: BPPD

Date: 3/28/12



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division (7511P)
1200 Pennsylvania Avenue NW
Washington, DC 20460

EPA Reg. Number:

85937-2

Date of Issuance:

MAR 27 2012

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

Bug Oil Food Use

Name and Address of Registrant (include ZIP Code):

Plant Impact plc
c/o
Exponent
1150 Connecticut Avenue NW
Suite 1100
Washington, DC 20036

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This registration does not eliminate the need for continual reassessment of the pesticide. If EPA determines at any time, that additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under section 3(c)(2)(B) of FIFRA. This product is unconditionally registered in accordance with FIFRA Sec. 3(c)(5) provided you:

1. Submit and/or cite all data required for registration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.
2. Revise the EPA Registration Number to read, "EPA Reg. No. 85937-2".
3. Submit within 1 year after the Date of Registration acceptable data packages for Guideline Studies: Storage Stability study (OPPTS GLN: 830.6317) and Corrosion Characteristics study (OPPTS GLN: 830.6320) for this product.
4. Submit two (2) copies of the final printed labeling before you release the product for shipment.

A stamped copy of the label is enclosed for your records.

Signature of Approving Official:

W. Michael McDavit, Associate Director,
Biopesticides and Pollution Prevention Division

Date:

MAR 27 2012

Bug Oil Food Use [Master Label]

Bug Oil Food Use Commercial [Sub-Label A]

For Indoor and Outdoor Use as an insecticide/acaricide for the control of mites, whiteflies, aphids, thrips, mealybugs, scales and psylla [on all food crops].

ACTIVE INGREDIENTS:

Canola Oil.....	93.899%
Tagetes Oil.....	0.6%
Thyme Oil.....	0.6%
Wintergreen Oil.....	0.001%

OTHER INGREDIENTS:4.9%

TOTAL.....100.000%

EPA Reg. No. 85937 - E

EPA Est. No.:

KEEP OUT OF REACH OF CHILDREN

[Refer to [Back][Side][Other] panel for Precautionary Statements]

Net Contents: X gallon(s) [X litre(s)]

Manufactured by:

Plant Impact
12 South Preston Office Village
Cuerden Way
Preston
UK
PR5 6BL
Tel: + 44 (0) 1772 628328

[] Denotes optional language.

ACCEPTED

3-27-12

Under the Federal Insecticide, Fungicide,
and Rodenticide Act, as amended, for
the pesticide registered under
EPA Reg. No. 85937-2

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Prolonged or frequently repeated skin contact with the concentrated product may cause allergic reactions in some individuals.

ENVIRONMENTAL HAZARDS

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation [Read [all other safety precautions and directions for use][entire label] prior to use.]

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

AGRICULTURAL USE REQUIREMENTS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), notification to workers, and restricted-entry interval. The requirements in this box apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water), is:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, and greenhouses.

- Keep children and pets off treated areas until dry.

Application Timing and Dose Rates

For all food crop plants and listed pests, apply Bug Oil at the rate of a 1% or 2% spray solution. See application instructions for more information. For a 1% spray solution, apply up to a maximum of 260 gallons of spray solution per acre (equivalent to no more than 2.6 gallons of Bug Oil per acre). For a 2% spray solution, apply up to a maximum of 260 gallons of spray solution per acre (equivalent to no more than 5.2 gallons of Bug Oil per acre). Apply as soon as pests appear on the plant. If required repeat applications every 5-7 days to ensure that each new generation that appears is treated.

Mixing

Shake the container of Bug Oil thoroughly before opening. Fill the spray tank with approximately half the required amount of water. Accurately measure the correct amount of Bug Oil and add this to the spray tank, agitating the mixture continuously. Add the remainder of the water to tank to make up to a 1% spray solution, 1.3 fluid ounces Bug Oil per gallon water (equivalent to no more than 2.6 gallons of Bug Oil per acre) or a 2% spray solution, 2.6 fluid ounces Bug Oil per gallon water (equivalent to no more than 5.2 gallons of Bug Oil per acre). Keep the solution agitated during spraying and use immediately. Avoid leaving spray liquid in the sprayer for long periods such as during meal times and overnight.

FILL THE TANK HALF FULL THEN ADD PRODUCTS IN THIS ORDER:

1. Dry flowables (DF)
2. Wettable powders (WP) and Wettable dry granules (WDG)
3. Flowables (F and SC)
4. Foliar fertilizers
5. Then any products containing oils of any kind including Emulsifiable concentrates (EC)

Spray Application

Choose a nozzle that produces a fine spray quality and apply the product to give thorough coverage of the plant foliage, ensuring both the upper and lower surfaces of the leaves are covered. Do not spray more than required and ensure spray run-off is avoided. A minimum of 22 gallons of spray solution per acre should be applied.

[Cleaning Spray Equipment

Ensure all spray equipment is thoroughly cleaned after use. Use of water and detergent will be sufficient. Dispose of washings according to local regulations.]

[Crop Safety

Bug Oil has been tested on tomatoes and a range of plant species. However, before using Bug Oil on any new plant species or varieties, it is recommended that a small area is sprayed first to assess crop safety. Any mixtures with other products need to be tested prior to large scale use, to ensure physical compatibility and crop safety.

Tomato crops can be sprayed when in flower but suitable precautions should be taken to minimize the risk of crop damage by spraying in the morning or evening when temperatures are lower.]

USE SITES

Bug Oil is used to control mites, whiteflies, aphids, thrips, mealybugs, scales and psylla [on all food crops]. [Please see Appendix I for all food crops.][Some or all crops may be included on product label.] [Bug Oil can be used on [insert specific crops from Appendix I].]

Pre-harvest interval: This product can be applied up to and including the day of harvest.

Application Instructions

Maximum Single Application Rate					
Pest	1% Spray Solution		2% Spray Solution		Notes
	fl. oz. / gallon of water	gallons Bug Oil / acre	fl. oz. / gallon of water	gallons Bug Oil / acre	
Whiteflies <i>Trialeurodes vaporariorum</i> <i>Bemisia tabaci</i> <i>Bemisia argentifolii</i>	1.3	2.6	2.6	5.2	Apply 1 % spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Mites <i>Tetranychus spp.</i> <i>Panonychus spp.</i>	1.3	2.6	N/A	N/A	
Aphids <i>Aphis gossypii</i> <i>Myzus persicae</i> <i>Aphis spp.</i>	1.3	2.6	2.6	5.2	Apply 1 % spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Thrips <i>Frankliniella spp.</i>	N/A	N/A	2.6	5.2	
Mealybugs	1.3	2.6	N/A	N/A	
Scales	1.3	2.6	N/A	N/A	
Psylla spp.	1.3	2.6	N/A	N/A	

Apply no more than 260 gallons of water per acre. Apply to ensure thorough coverage of plants and pests. A minimum rate of 22 gallons per acre is recommended.

Resistance: The mode of action includes a physical element and resistance is less likely to arise with Bug Oil than with pesticides relying on chemical effects alone.

[COMPATIBILITY

Bug Oil may be tank-mixed with a variety of plant protection products and foliar nutrient sprays providing that the application timing is correct for both Bug Oil and the partner(s) in the mixture.

The products should be added separately to the bulk of water in the spray tank. Continuous agitation should be maintained and the product used immediately after mixing.

For further information on the approval status of mixture partners, consult Plant Impact.

If a tank-mix with another product is required, add the Bug Oil to the spray tank first and ensure that it is fully dispersed before adding subsequent products. PLEASE SEE THE MIXING SCHEDULE ABOVE.

Ensure that the label recommendations are followed for the partner product.]

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

PESTICIDE STORAGE

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Nonrefillable container. Do not reuse or refill this container.

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[NOTICE TO BUYER]

[Note: Plant Impact warrants that this product complies with the specifications expressed in this label. To the extent consistent with applicable law, Plant Impact makes no other warranties, and disclaims all other warranties, express or implied, including but not limited to warranties of merchantability and fitness for the intended purpose. To the extent consistent with applicable law, Plant Impact's liability or default, breach or failure under this label shall be limited to the amount of the purchase price. To the extent consistent with applicable law, Plant Impact shall have no liability for consequential damages.]

[Warranty and Disclaimer Statement]

[The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Such risks may arise from weather conditions, soil factors, off-target movement, unconventional farming techniques, the presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of Plant Impact, and can cause crop injury, injury to non-target crops or plants, ineffectiveness of the product, or other unintended consequences. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

Plant Impact warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal conditions. This warranty does not extend to the use of this product contrary to label instructions or under conditions not reasonably foreseeable to Plant Impact, and is subject to the inherent risks described above.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PLANT IMPACT DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PLANT IMPACT, MANUFACTURER, AND SELLER DISCLAIM AND SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE, OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES, AND THE USER AND BUYER WAIVE ANY RIGHT THAT THEY MAY HAVE TO SUCH DAMAGES. NO AGENT, REPRESENTATIVE OR EMPLOYEE OF PLANT IMPACT IS AUTHORIZED TO MAKE ANY WARRANTY, GUARANTEE OR REPRESENTATION BEYOND THOSE CONTAINED HEREIN OR TO MODIFY THE WARRANTIES CONTAINED HEREIN. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE TOTAL LIABILITY OF PLANT IMPACT, MANUFACTURER, AND SELLER, SHALL BE LIMITED TO THE PURCHASE PRICE PAID, OR AT PLANT IMPACT'S ELECTION, THE REPLACEMENT OF THE PRODUCT.]

Manufactured by:

Plant Impact
12 South Preston Office Village
Cuerden Way
Preston
UK
PR5 6BL
Tel: + 44 (0) 1772 773774
[Batch code]

Bug Oil Food Use Residential [Sub-Label B]

For Indoor and Outdoor Use as an insecticide/acaricide for the control of mites, whiteflies, aphids, thrips, mealybugs, scales and psylla [on all food crops].

ACTIVE INGREDIENTS:

Canola Oil.....	93.899%
Tagetes Oil.....	0.6%
Thyme Oil.....	0.6%
Wintergreen Oil.....	0.001%

OTHER INGREDIENTS:4.9%

TOTAL.....100.000%

EPA Reg. No. 85937 – E

EPA Est. No.:

KEEP OUT OF REACH OF CHILDREN

[Refer to [Back][Side][Other] panel for Precautionary Statements]

Net Contents: X gallon(s) [X litre]

Manufactured by:

Plant Impact
12 South Preston Office Village
Cuerden Way
Preston
UK
PR5 6BL
Tel: + 44 (0) 1772 628328

[] Denotes optional language.

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Prolonged or frequently repeated skin contact with the concentrated product may cause allergic reactions in some individuals.

ENVIRONMENTAL HAZARDS

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation [Read [all other safety precautions and directions for use][entire label] prior to use.]
Keep children and pets off treated areas until dry.

Application Timing and Rates

For all food crop plants and listed pests, apply Bug Oil at the rate of a 1% or 2% spray solution. See application instructions for more information. For a 1% spray solution, apply up to a maximum of 6 gallons of spray solution per 1000 square feet (equivalent to no more than 7.7 fluid ounces of Bug Oil per 1000 square feet). For a 2% spray solution, apply up to a maximum of 6 gallons of spray solution per 1000 square feet (equivalent to no more than 15.4 fluid ounces of Bug Oil per 1000 square feet). Apply as soon as pests appear in the plant. If required repeat applications every 5-7 days to ensure that each new generation that appears is treated.

Mixing

Shake the container of Bug Oil thoroughly before opening. Fill the spray tank with approximately half the required amount of water. Accurately measure the correct amount of Bug Oil and add this to the spray tank, agitating the mixture continuously. Add the remainder of the water to tank to make up to a 1% spray solution, 1.3 fluid ounces Bug Oil per gallon water (equivalent to no more than 7.7 fluid ounces of Bug Oil per 1000 square feet) or a 2% spray solution, 2.6 fluid ounces Bug Oil per gallon water (equivalent to no more than 15.4 fluid ounces of Bug Oil per 1000 square feet). Keep the solution agitated during spraying and use immediately. Avoid leaving spray liquid in the sprayer for long periods such as during meal times and overnight.

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2. Wettable powders (WP) and Wettable dry granules (WDG)
3. Flowables (F and SC)
4. Foliar fertilizers
5. Then any products containing oils of any kind including emulsifiable concentrates (EC)

[Cleaning Spray Equipment

Ensure all spray equipment is thoroughly cleaned after use. Use of water and detergent will be sufficient. Dispose of washings according to local regulations.]

[Crop Safety

Bug Oil has been tested on tomatoes and a range of plant species. However, before using Bug Oil on any new plant species or varieties, it is recommended that a small area is sprayed first to assess crop safety. Any mixtures with other products need to be tested prior to large scale use, to ensure physical compatibility and crop safety.

Tomato crops can be sprayed when in flower but suitable precautions should be taken to minimize the risk of crop damage by spraying in the morning or evening when temperatures are lower.]

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Pre-harvest interval: This product can be applied up to and including the day of harvest.

Application Instructions

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Mites <i>Tetranychus spp.</i> <i>Panonychus spp.</i>	1.3	2.6	N/A	N/A	
Aphids <i>Aphis gossypii</i> <i>Myzus persicae</i> <i>Aphis spp.</i>	1.3	2.6	2.6	5.2	Apply 1 % spray solution at the onset of the pest entering the crop. Increase the rate to 2% spray solution under conditions of high pest pressure or in indoor crops when multiplication of the pest is rapid.
Thrips <i>Franklinella spp.</i>	N/A	N/A	2.6	5.2	
Mealybugs	1.3	2.6	N/A	N/A	
Scales	1.3	2.6	N/A	N/A	
Psylla spp.	1.3	2.6	N/A	N/A	

Apply to ensure thorough coverage of plants and pests.

Resistance: The mode of action includes a physical element and resistance is less likely to arise with Bug Oil than with pesticides relying on chemical effects alone.

[COMPATIBILITY

Bug Oil may be tank-mixed with a variety of plant protection products and foliar nutrient sprays providing that the application timing is correct for both Bug Oil and the partner(s) in the mixture.

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Ensure that the label recommendations are followed for the partner product.]

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

PESTICIDE STORAGE

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Nonrefillable container. Do not reuse or refill this container.

If empty: Place in trash or offer for recycling if available.

If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

[NOTICE TO BUYER]

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[Warranty and Disclaimer Statement]

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Tel: + 44 (0) 1772 628328

[Batch code]

[Some or all crops from Appendix I maybe listed on the final marketed product label.]

APPENDIX I

COTTON

ROOT AND TUBER VEGETABLES - CROP GROUP 1

Arracacha (*Arracacia xanthorrhiza*)
Arrowroot (*Maranta arundinacea*)
Artichoke, Chinese (*Stachys affinis*)
Artichoke, Jerusalem (*Helianthus tuberosus*)
Beet, garden (*Beta vulgaris*)
Beet, sugar (*Beta vulgaris*)
Burdock, edible (*Arctium lappa*)
Canna, edible (Queensland arrowroot) (*Canna indica*)
Carrot (*Daucus carota*)
Cassava, bitter and sweet (*Manihot esculenta*)
Celeriac (celery root) (*Apium graveolens* var. *rapaceum*)
Chayote (root) (*Sechium edule*)
Chervil, turnip-rooted (*Chaerophyllum bulbosum*).
Chicory (*Cichorium intybus*)
Chufa (*Cyperus esculentus*)
Dasheen (taro) (*Colocasia esculenta*)
Ginger (*Zingiber officinale*)
Ginseng (*Panax quinquefolius*)
Horseradish (*Armoracia rusticana*)
Leren (*Calathea allouia*)
Parsley, turnip-rooted (*Petroselinum crispum* var. *tuberosum*)
Parsnip (*Pastinaca sativa*)
Potato (*Solanum tuberosum*)
Radish (*Raphanus sativus*)
Radish, oriental (daikon) (*Raphanus sativus* subvar. *longipinnatus*)
Rutabaga (*Brassica campestris* var. *napobrassica*)
Salsify (oyster plant) (*Tragopogon porrifolius*).
Salsify, black (*Scorzonera hispanica*)
Salsify, Spanish (*Scolymus hispanicus*)
Skirret (*Sium sisarum*)
Sweet potato (*Ipomoea batatas*)
Tanier (cocoyam) (*Xanthosoma sagittifolium*)
Turmeric (*Curcuma longa*)
Turnip (*Brassica rapa* var. *rapa*)
Yam bean (jicama, manioc pea) (*Pachyrhizus* spp.)
Yam, true (*Dioscorea* spp.)

LEAVES OF ROOT AND TUBER VEGETABLES (HUMAN FOOD OR ANIMAL FEED) GROUP – COMMODITIES - CROP GROUP 2

Beet, garden (*Beta vulgaris*)
Beet, sugar (*Beta vulgaris*)
Burdock, edible (*Arctium lappa*)
Carrot (*Daucus carota*)
Cassava, bitter and sweet (*Manihot esculenta*)
Celeriac (celery root) (*Apium graveolens* var. *rapaceum*)
Chervil, turnip-rooted (*Chaerophyllum bulbosum*)
Chicory (*Cichorium intybus*)
Dasheen (taro) (*Colocasia esculenta*)
Parsnip (*Pastinaca sativa*)
Radish (*Raphanus sativus*)
Radish, oriental (daikon) (*Raphanus sativus* subvar. *longipinnatus*)
Rutabaga (*Brassica campestris* var. *napobrassica*)
Salsify, black (*Scorzonera hispanica*)
Sweet potato (*Ipomoea batatas*)
Tanier (cocoyam) (*Xanthosoma sagittifolium*)
Turnip (*Brassica rapa* var. *rapa*)
Yam, true (*Dioscorea* spp.)

BULB VEGETABLES (*Alliums* spp.) GROUP – COMMODITIES - CROP GROUP 3

Chive, fresh leaves (*Allium schoenoprasum* L.)
Chive, Chinese, fresh leaves (*Allium tuberosum* Rottler ex Spreng)
Daylily, bulb (*Hemerocallis fulva* (L.) L. var. *fulva*)

Elegans hosta (*Hosta Sieboldiana* (Hook.) Engl)
 Fritillaria, bulb (*Fritillaria L. fritillary*)
 Fritillaria, leaves (*Fritillaria L. fritillary*)
 Garlic, bulb (*Allium sativum* L. var. *sativum*) (*A. sativum* Common Garlic Group)
 Garlic, great headed, bulb (*Allium ampeloprasum* L. var. *ampeloprasum*) (*A. ampeloprasum* Great Headed Garlic Group)
 Garlic, Serpent, bulb (*Allium sativum* var. *ophioscorodon* or *A. sativum* Ophioscorodon Group)
 Kurrat (*Allium kurrat* Schweinf. Ex. K. Krause or *A. ampeloprasum* Kurrat Group)
 Lady's leek (*Allium cernuum* Roth)
 Leek *Allium porrum* L. (syn: *A. ampeloprasum* L. var. *porrum* (L.) J. Gay) (*A. ampeloprasum* Leek Group)
 Leek, wild (*Allium tricoccum* Aiton)
 Lily, bulb (*Lilium* spp. (*Lilium Leichtlinii* var. *maximowiczii*, *Lilium lancifolium*))
 Onion, Beltsville bunching (*Allium x proliferum* (Moench) Schrad.) (syn: *Allium fistulosum* L. x *A. cepa* L.)
 Onion, bulb (*Allium cepa* L. var. *cepa*) (*A. cepa* Common Onion Group)
 Onion, Chinese, bulb (*Allium chinense* G. Don.) (syn: *A. bakeri* Regel)
 Onion, fresh (*Allium fistulosum* L. var. *caespitosum* Makino)
 Onion, green (*Allium cepa* L. var. *cepa*) (*A. cepa* Common Onion Group)
 Onion, macrostem (*Allium macrostemon* Bunge)
 Onion, pearl (*Allium porrum* var. *sectivum* or *A. ampeloprasum* Pearl Onion Group)
 Onion, potato, bulb (*Allium cepa* L. var. *aggregatum* G. Don.) (*A. cepa* Aggregatum Group)
 Onion, tree, tops (*Allium x proliferum* (Moench) Schrad. ex Willd.) (syn: *A. cepa* var. *proliferum* (Moench) Regel; *A. cepa* L. var. *bulbiferum* L.H. Bailey; *A. cepa* L. var. *viviparum* (Metz.) Alef.)
 Onion, Welsh, tops (*Allium fistulosum* L.)
 Shallot, bulb (*Allium cepa* var. *aggregatum* G. Don.)
 Shallot, fresh leaves (*Allium cepa* var. *aggregatum* G. Don.)
 Cultivars, varieties, and/or hybrids of these.

LEAFY VEGETABLES (EXCEPT BRASSICA VEGETABLES) GROUP - CROP GROUP 4

Amaranth (leafy amaranth, Chinese spinach, tampala) (*Amaranthus* spp.)
 Arugula (Roquette) (*Eruca sativa*)
 Cardoon (*Cynara cardunculus*)
 Celery (*Apium graveolens* var. *dulce*)
 Celery, Chinese (*Apium graveolens* var. *secalinum*)
 Celtuce (*Lactuca sativa* var. *angustana*)
 Chervil (*Anthriscus cerefolium*)
 Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. *coronarium*)
 Chrysanthemum, garland (*Chrysanthemum coronarium* var. *spatiosum*)
 Corn salad (*Valerianella locusta*)
 Cress, garden (*Lepidium sativum*)
 Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*)
 Dandelion (*Taraxacum officinale*)
 Dock (sorrel) (*Rumex* spp.)
 Endive (escarole) (*Cichorium endivia*)
 Fennel, Florence (finocchio) (*Foeniculum vulgare* Azoricum Group)
 Lettuce, head and leaf (*Lactuca sativa*)
 Orach (*Atriplex hortensis*)
 Parsley (*Petroselinum crispum*)
 Purslane, garden (*Portulaca oleracea*)
 Purslane, winter (*Montia perfoliata*)
 Radicchio (red chicory) (*Cichorium intybus*)
 Rhubarb (*Rheum rhabarbarum*)
 Spinach (*Spinacia oleracea*)
 Spinach, New Zealand (*Tetragonia tetragonioides*, *T. expansa*)
 Spinach, vine (Malabar spinach, Indian spinach) (*Basella alba*)
 Swiss chard (*Beta vulgaris* var. *cicla*)

BRASSICA (COLE) LEAFY VEGETABLES - CROP GROUP 5

Broccoli (*Brassica oleracea* var. *botrytis*)
 Broccoli, Chinese (gai lon) (*Brassica alboglabra*)
 Broccoli raab (rapini) (*Brassica campestris*)
 Brussels sprouts (*Brassica oleracea* var. *gemmifera*)
 Cabbage (*Brassica oleracea*)
 Cabbage, Chinese (bok choy) (*Brassica chinensis*)
 Cabbage, Chinese (napa) (*Brassica pekinensis*)
 Cabbage, Chinese mustard (gai choy) (*Brassica campestris*)
 Cauliflower (*Brassica oleracea* var. *botrytis*)
 Cavalo broccolo (*Brassica oleracea* var. *botrytis*)
 Collards (*Brassica oleracea* var. *acephala*)
 Kale (*Brassica oleracea* var. *acephala*)
 Kohlrabi (*Brassica oleracea* var. *gongylodes*)
 Mizuna (*Brassica rapa* Japonica Group)

Mustard greens (*Brassica juncea*)
Mustard spinach (*Brassica rapa* Perviridis Group)
Rape greens (*Brassica napus*)

LEGUME VEGETABLES (SUCCULENT OR DRIED) – CROP GROUP 6

Bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin)
Bean (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean)
Bean (*Vigna* spp.) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean)
Broad bean (fava bean) (*Vicia faba*)
Chickpea (garbanzo bean) (*Cicer arietinum*)
Guar (*Cyamopsis tetragonoloba*)
Jackbean (*Canavalia ensiformis*)
Lablab bean (hyacinth bean) (*Lablab purpureus*)
Lentil (*Lens esculenta*)
Pea (*Pisum* spp.) (includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, green pea, snow pea, sugar snap pea)
Pigeon pea (*Cajanus cajan*)
Soybean (*Glycine max*)
Soybean (immature seed) (*Glycine max*)
Sword bean (*Canavalia gladiata*)

FOLIAGE OF LEGUME VEGETABLES GROUP – CROP GROUP 7

Any cultivar of bean (*Phaseolus* spp.) and field pea (*Pisum* spp.), and soybean (*Glycine max*)

FRUITING VEGETABLES (EXCEPT CUCURBITS) – COMMODITIES – CROP GROUP 8

Eggplant (*Solanum melongena*)
Groundcherry (*Physalis* spp.)
Pepino (*Solanum muricatum*)
Pepper (*Capsicum* spp.) (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper)
Tomatillo (*Physalis ixocarpa*)
Tomato (*Lycopersicon esculentum*)

CUCURBIT VEGETABLES – CROP GROUP 9

Chayote (fruit) (*Sechium edule*)
Chinese waxgourd (Chinese preserving melon) (*Benincasa hispida*)
Citron melon (*Citrullus lanatus* var. *citroides*)
Cucumber (*Cucumis sativus*)
Gherkin (*Cucumis anguria*)
Gourd, edible (*Lagenaria* spp.) (includes hyotan, cucuzza); (*Luffa acutangula*, *L. cylindrica*) (includes hechima, Chinese okra)
Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber)
Muskmelon (hybrids and/or cultivars of *Cucumis melo*) (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon)
Pumpkin (*Cucurbita* spp.)
Squash, summer (*Cucurbita pepo* var. *melopepo*) (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini)
Squash, winter (*Cucurbita maxima*; *C. moschata*) (includes butternut squash, calabaza, hubbard squash); (*C. mixta*; *C. pepo*) (includes acorn squash, spaghetti squash)
Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

CITRUS FRUITS (CITRUS spp., FORTUNELLA spp.) GROUP – COMMODITIES – CROP GROUP 10

Calamondin (*Citrus mitis* × *Citrofortunella mitis*)
Citrus citron (*Citrus medica*)
Citrus hybrids (*Citrus* spp.) (includes chironja, tangelo, tangor)
Grapefruit (*Citrus paradisi*)
Kumquat (*Fortunella* spp.)
Lemon (*Citrus jambhiri*, *Citrus limon*)
Lime (*Citrus aurantiifolia*)
Mandarin (tangerine) (*Citrus reticulata*)
Orange, sour (*Citrus aurantium*)
Orange, sweet (*Citrus sinensis*)
Pummelo (*Citrus grandis*, *Citrus maxima*)
Satsuma mandarin (*Citrus unshiu*)

POME FRUITS GROUP – COMMODITIES – CROP GROUP 11

Apple (*Malus domestica*)
Crabapple (*Malus* spp.)
Loquat (*Eriobotrya japonica*)
Mayhaw (*Crataegus aestivalis*, *C. opaca*, and *C. rufula*)

Pear (*Pyrus communis*)
Pear, oriental (*Pyrus pyrifolia*)
Quince (*Cydonia oblonga*)

STONE FRUITS GROUP – COMMODITIES – CROP GROUP 12

Apricot (*Prunus armeniaca*)
Cherry, sweet (*Prunus avium*),
Cherry, tart (*Prunus cerasus*)
Nectarine (*Prunus persica*)
Peach (*Prunus persica*)
Plum (*Prunus domestica*, *Prunus* spp.)
Plum, Chickasaw (*Prunus angustifolia*)
Plum, Damson (*Prunus domestica* spp. *insititia*)
Plum, Japanese (*Prunus salicina*)
Plumcot (*Prunus. armeniaca* × *P. domestica*)
Prune (fresh) (*Prunus domestica*, *Prunus* spp.)

BERRIES GROUP – CROP GROUP 13

Blackberry (*Rubus eubatus*) (including bingleberry, black satin berry, boysenberry, Cherokee blackberry, Chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Himalayaberry, hullberry, Lavacaberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectarberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these)
Blueberry (*Vaccinium* spp.)
Currant (*Ribes* spp.)
Elderberry (*Sambucus* spp.)
Gooseberry (*Ribes* spp.)
Huckleberry (*Gaylussacia* spp.)
Loganberry (*Rubus loganobaccus*)
Raspberry, black and red (*Rubus occidentalis*, *Rubus strigosus*, *Rubus idaeus*)

BERRY AND SMALL FRUIT CROP GROUP – CROP GROUP 13-07

Amur river grape (*Vitis amurensis* Rupr)
Aronia berry (*Aronia* spp.)
Bayberry (*Myrica* spp.)
Bearberry (*Arctostaphylos uva-ursi*)
Bilberry (*Vaccinium myrtillus* L.)
Blackberry (*Rubus* spp.) (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, and cultivars, varieties and/or hybrids of these.)
Blueberry, highbush (*Vaccinium* spp.)
Blueberry, lowbush (*Vaccinium angustifolium* Aiton)
Buffalo currant (*Ribes aureum* Pursh)
Buffaloberry (*Shepherdia argentea* (Pursh) Nutt.)
Che (*Cudrania tricuspidata* Bur. Ex Lavallee)
Chilean guava (*Myrtus ugni* Mol.)
Chokecherry (*Prunus virginiana* L.)
Cloudberry (*Rubus chamaemorus* L.)
Cranberry (*Vaccinium macrocarpon* Aiton)
Currant, black (*Ribes nigrum* L.)
Currant, red (*Ribes rubrum* L.)
Elderberry (*Sambucus* spp.)
European barberry (*Berberis vulgaris* L.)
Gooseberry (*Ribes* spp.)
Grape (*Vitis* spp.)
Highbush cranberry (*Viburnum opulus* L. var. *Americanum* Aiton)
Honeysuckle, edible (*Lonicera caerulea* L. var. *emphyllocalyx* Nakai, *Lonicera caerulea* L var. *edulis* Turcz. ex herder)
Huckleberry (*Gaylussacia* spp.)
Jostaberry (*Ribes x nidigrolaria* Rud. Bauer and A. Bauer)
Juneberry (Saskatoon berry) (*Amelanchier* spp.)
Kiwifruit, fuzzy (*Actinidia deliciosa* A. Chev.) (C.F. Liang and A.R. Fergusons, *Actinida chinensis* Planch.)
Kiwifruit, hardy (*Actinidia arguta* (Siebold and Zucc.) Planch. ex Miq)
Lingonberry (*Vaccinium vitis-idaea* L.)
Maypop (*Passiflora incarnata* L.)
Mountain pepper berries (*Tasmannia lanceolata*)(Poir.) A.C.Sm.
Mulberry (*Morus* spp.)
Muntries (*Kunzea pomifera* F. Muell.)

Native currant (*Acrotriche depressa* R. BR.)
 Partridgeberry (*Mitchella repens* L.)
 Phalsa (*Grewia subinaequalis* DC.)
 Pincherry (*Prunus pensylvanica* L.f.)
 Raspberry, black and red (*Rubus* spp.)
 Riberry (*Syzygium luehmannii*)
 Salal (*Gaultheria shallon* Pursh.)
 Schisandra berry (*Schisandra chinensis* (Turcz.) Baill.)
 Sea buckthorn (*Hippophae rhamnoides* L.)
 Serviceberry (*Sorbus* spp.)
 Strawberry (*Fragaria x ananassa* Duchesne)
 Wild raspberry (*Rubus muelleri* Lefevre ex P.J. Mull)
 Cultivars, varieties, and/or hybrids of these.

TREE NUTS – COMMODITIES – CROP GROUP 14

Almond (*Prunus dulcis*)
 Beech nut (*Fagus* spp.)
 Brazil nut (*Bertholletia excelsa*)
 Butternut (*Juglans cinerea*)
 Cashew (*Anacardium occidentale*)
 Chestnut (*Castanea* spp.)
 Chinquapin (*Castanea pumila*)
 Filbert (hazelnut) (*Corylus* spp.)
 Hickory nut (*Carya* spp.)
 Macadamia nut (bush nut) (*Macadamia* spp.)
 Pecan (*Carya illinoensis*)
 Walnut, black and English (Persian) (*Juglans* spp.)

CEREAL GRAINS – COMMODITIES – CROP GROUP 15

Barley (*Hordeum* spp.)
 Buckwheat (*Fagopyrum esculentum*)
 Corn (*Zea mays*)
 Millet, pearl (*Pennisetum glaucum*)
 Millet, proso (*Panicum milliaceum*)
 Oats (*Avena* spp.)
 Popcorn (*Zea mays* var. *evarta*)
 Rice (*Oryza sativa*)
 Rye (*Secale cereale*)
 Sorghum (milo) (*Sorghum* spp.)
 Teosinte (*Euchlaena mexicana*)
 Triticale (*Triticum-Secale* hybrids)
 Wheat (*Triticum* spp.)
 Wild rice (*Zizania aquatica*)

FORAGE, FODDER AND STRAW OF CEREAL GRAINS GROUP – CROP GROUP 16

Forage, fodder, and straw of all commodities included in the group cereal grains group.

GRASS FORAGE, FODDER, AND HAY GROUP – CROP GROUP 17

Any grass, *Gramineae* family (either green or cured) except sugarcane and those included in the cereal grains group, that will be fed to or grazed by livestock, all pasture and range grasses and grasses grown for hay or silage.

NONGRASS ANIMAL FEEDS (FORAGE, FODDER, STRAW, AND HAY) GROUP – CROP GROUP 18

Alfalfa (*Medicago sativa* subsp. *sativa*)
 Bean, velvet (*Mucuna pruriens* var. *utilis*)
 Clover (*Trifolium* spp., *Melilotus* spp.)
 Kudzu (*Pueraria lobata*)
 Lespedeza (*Lespedeza* spp.)
 Lupin (*Lupinus* spp.)
 Sainfoin (*Onobrychis viciifolia*);
 Trefoil (*Lotus* spp.)
 Vetch (*Vicia* spp.)
 Vetch, crown (*Coronilla varia*)
 Vetch, milk (*Astragalus* spp.)

HERBS AND SPICES GROUP – CROP GROUP 19

Allspice (*Pimenta dioica*)
 Angelica (*Angelica archangelica*)
 Anise (anise seed) (*Pimpinella anisum*)
 Anise, star (*Illicium verum*)

Annatto (seed)
 Balm (lemon balm) (*Melissa officinalis*)
 Basil (*Ocimum basilicum*)
 Borage (*Borago officinalis*)
 Burnet (*Sanguisorba minor*)
 Camomile (*Anthemis nobilis*)
 Caper buds (*Capparis spinosa*)
 Caraway (*Carum carvi*)
 Caraway, black (*Nigella sativa*)
 Cardamom (*Elettaria cardamomum*)
 Cassia bark (*Cinnamomum aromaticum*)
 Cassia buds (*Cinnamomum aromaticum*)
 Catnip (*Nepeta cataria*)
 Celery seed (*Apicum graveolens*)
 Chervil (dried) (*Anthriscus cerefolium*)
 Chive (*Allium schoenoprasum*)
 Chive, Chinese (*Allium tuberosum*)
 Cinnamon (*Cinnamomum verum*)
 Clary (*Salvia sclarea*)
 Clove buds (*Eugenia caryophyllata*)
 Coriander (cilantro or Chinese parsley) (leaf) (*Coriandrum sativum*)
 Coriander (cilantro) (seed) (*Coriandrum sativum*)
 Costmary (*Chrysanthemum balsamita*)
 Culantro (leaf) (*Eryngium foetidum*)
 Culantro (seed) (*Eryngium foetidum*)
 Cumin (*Cuminum cyminum*)
 Curry (leaf) (*Murraya koenigii*)
 Dill (dillweed) (*Anethum graveolens*)
 Dill (seed) (*Anethum graveolens*)
 Fennel (common) (*Foeniculum vulgare*)
 Fennel, Florence (seed) (*Foeniculum vulgare* Azoricum Group)
 Fenugreek (*Trigonella foenumgraecum*)
 Grains of paradise (*Aframomum melegueta*)
 Horehound (*Marrubium vulgare*)
 Hyssop (*Hyssopus officinalis*)
 Juniper berry (*Juniperus communis*)
 Lavender (*Lavandula officinalis*)
 Lemongrass (*Cymbopogon citratus*)
 Lovage (leaf) (*Levisticum officinale*)
 Lovage (seed) (*Levisticum officinale*)
 Mace (*Myristica fragrans*)
 Marigold (*Calendula officinalis*)
 Marjoram (*Origanum spp.*) (includes sweet or annual marjoram, wild marjoram or oregano, and pot marjoram)
 Mustard (seed) (*Brassica juncea*, *B. hirta*, *B. nigra*)
 Nasturtium (*Tropaeolum majus*)
 Nutmeg (*Myristica fragrans*)
 Parsley (dried) (*Petroselinum crispum*)
 Pennyroyal (*Mentha pulegium*)
 Pepper, black (*Piper nigrum*)
 Pepper, white
 Poppy (seed) (*Papaver somniferum*)
 Rosemary (*Rosemarinus officinalis*)
 Rue (*Ruta graveolens*)
 Saffron (*Crocus sativus*)
 Sage (*Salvia officinalis*)
 Savory, summer and winter (*Satureja spp.*)
 Sweet bay (bay leaf) (*Laurus nobilis*)
 Tansy (*Tanacetum vulgare*)
 Tarragon (*Artemisia dracunculus*)
 Thyme (*Thymus spp.*)
 Vanilla (*Vanilla planifolia*)
 Wintergreen (*Gaultheria procumbens*)
 Woodruff (*Galium odorata*)
 Wormwood (*Artemisia absinthium*)

EDIBLE FUNGI GROUP – COMMODITIES – CROP GROUP 21

Blewitt (*Lepista nuda*)
 Bunashimeji (*Hypsizygus marmoreus*)
 Chinese mushroom (*Volvariella volvacea*) (Bull.) Singer

Enoki (*Flammulina velutipes*) (Curt.) Singe.
Hime-Matsutake (*Agaricus blazei*) Murill
Hirneola (*Auricularia auricular*)
Maitake (*Grifola frondosa*)
Morel (*Morchella* spp.)
Nameko (*Pholiota nameko*)
Net Bearing (*Dictyophora*)
Oyster mushroom (*Pleurotus* spp.)
Pom Pom (*Hericium erinaceus*)
Reishi mushroom (*Ganoderma lucidum* (Leyss. Fr.) Karst.)
Rodman's agaricus (*Agaricus bitorquis*) (Quel.) Saccardo
Shiitake mushroom (*Lentinula edodes* (Berk.) Pegl.)
Shimeji (*Tricholoma conglobatum*)
Stropharia (*Stropharia* spp.)
Truffle (*Tuber* spp.)
White button mushroom (*Agaricus bisporous* (Lange) Imbach)
White Jelly Fungi (*Tremella fuciformis*)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: Consideration of a Section 3(c)(5) Unconditional Registration for the New Active Ingredient, Tagetes Oil (PC Code 176602).

-----**DECISION MEMORANDUM**-----

FROM: Keith A. Matthews, Director *K. A. Matthews*
Biopesticides and Pollution Prevention Division *22 March 2012*

TO: Steven Bradbury, Ph.D., Director
Office of Pesticide Programs

I. ISSUE

Should the Agency, under Section 3(c)(5) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), grant an unconditional registration for the new biochemical active ingredient, tagetes oil (PC Code 176602), which is proposed for use as an insecticide/acaricide for the control of mites, whiteflies, aphids, thrips, mealybugs, scales, and psylla on a variety of food and non-food crops.

II. APPLICATION INFORMATION

On September 18, 2009, Exponent on behalf of Plant Impact plc, submitted an application for registration of the end-use products (EPs), Bug Oil Food Use (EPA File Symbol No. 85937-E) and Bug Oil Ornamental (EPA File Symbol No. 85937-R), containing the new biochemical active ingredient, tagetes oil, and the currently registered active ingredients, canola oil, thyme oil, and wintergreen oil. A notice of receipt (NOR) of this application, allowing for a 30-day comment period, was published in the Federal Register on December 16, 2009 (74 FR 66639). No comments were received following this publication. In addition, the applicant filed a petition (PP 9F7619) proposing to establish an exemption from the requirement of a tolerance for residues of tagetes oil in or on all food commodities. A notice of filing (NOF), allowing for a 30-

day comment period, was published in the Federal Register on December 16, 2009 (74 FR 66644). No comments were received following this publication. The Agency determined during the review of the petition that the active ingredient, tagetes oil, is an edible oil and is exempt from the requirement of a tolerance as a minimal risk active ingredient under 40 CFR 180.950(c). Therefore, the petition (PP 9F7619) filed by the applicant is no longer applicable, nor needed, for this new active ingredient, tagetes oil, and has been withdrawn by the Agency.

III. BACKGROUND AND CONCLUSIONS

The Biopesticides and Pollution Prevention Division (BPPD) reviewed the submitted data and information regarding the proposed use of tagetes oil. Evaluations of the data and conclusions are summarized and discussed in the attached Biopesticide Registration Action Document (BRAD).

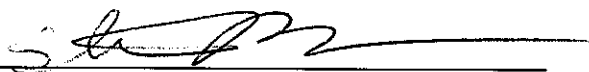
BPPD has assessed the registration applications for Bug Oil Food Use and Bug Oil Ornamental pursuant to the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA), and determined that, if used in accordance with label directions, (1) no unreasonable adverse effects to the environment will result from the use of these products, and (2) there is a reasonable certainty that no harm will result from exposure to residues of tagetes oil. Tagetes oil is extracted from the flowering herb, *Tagetes minuta* (Muster John Henry or Mexican Marigold). The major constituents of the identified components of tagetes oil are terpenes, which are found in a variety of essential oils. The mode of action is repellency by tagetes oil alone and suffocation by tagetes oil in conjunction with the other actives in the proposed EPs, canola oil, thyme oil, and wintergreen oil. Based on the Agency's risk assessment, BPPD has determined that registration of Bug Oil Food Use and Bug Oil Ornamental will not cause harm to humans and will not cause unreasonable adverse effects to the environment. Tagetes oil is exempt from the requirement of a tolerance as a minimal risk active ingredient under 40 CFR 180.950(c).

The data and information submitted by the applicant and reviewed by BPPD support the registration of the EPs, Bug Oil Food Use and Bug Oil Ornamental, containing the active ingredients, canola oil, tagetes oil, thyme oil, and wintergreen oil, at 93.899%, 0.6%, 0.6%, and 0.001%, respectively, when applied/used as directed on their labels and in accordance with good agricultural practices.

Tagetes oil is a new active ingredient, not present in any currently registered pesticide product. Therefore, it is subject to the Office of Pesticide Programs' (OPP) public participation process for certain registration actions. The notice announcing the start of this 30-day comment period was posted on February 21, 2012, to the public participation website and in docket ID EPA-HQ-OPP-2009-0822. Also posted to the docket were the draft Biopesticides Registration Action Document (BRAD) and draft product labels for Bug Oil Food Use and Bug Oil Ornamental. There were no comments received in support of the registration of tagetes oil.

IV. OFFICE DIRECTOR CONCURRENCE

Based on the discussion above, and the data summarized in the attached BRAD, BPPD recommends unconditional registration of the biochemical, tagetes oil (PC Code 176602), as a new active ingredient for use as a insecticide/acaricide for the control of mites, whiteflies, aphids, thrips, mealybugs, scales, and psylla on a variety of food crops.

Concurrence: 

Non-Concurrence: _____

Date: 3/23/12

Tagetes Oil (176602) Fact Sheet

Summary

Tagetes oil is a biochemical pesticide active ingredient intended for use as an insecticide/acaricide for the control of mites, whiteflies, aphids, thrips, mealybugs, scales, and psylla on a variety of food and non-food crops. The active ingredient is extracted from the flowering herb, *Tagetes minuta* (Muster John Henry or Mexican Marigold). The major constituents of the identified components of tagetes oil are terpenes, which are found in a variety of essential oils. The use of tagetes oil as an insecticide/acaricide is not expected to cause any unreasonable adverse effects to human health or the environment.

I. Description of the Active Ingredient

Tagetes oil is extracted from the flowering herb, *Tagetes minuta* (Muster John Henry or Mexican Marigold). The major constituents of the identified components of tagetes oil are terpenes, which are found in a variety of essential oils. Tagetes oil, as *Tagetes patula* L., *T. erecta* L., or *T. minuta* L. (*T. glandulifera* Schrank), is approved by the U.S. Food and Drug Administration (FDA) for use in food as a natural flavoring substance and natural adjuvant (in the oil form only) under 21 CFR 172.510. Tagetes oil is also used in some cosmetics including shampoos, soaps and lotions.

II. Use Sites, Target Pests, and Application Methods

Use Sites:	A variety of food and non-food crops
Target Pests:	Mites, whiteflies, aphids, thrips, mealybugs, scales, and psylla
Application Methods:	Spray application

III. Assessing Risks to Human Health

Review of the required toxicity testing data concludes that tagetes oil does not exhibit any toxicity to humans except through dermal exposure, in which case tagetes oil demonstrated some acute toxicity and is moderately irritating to the skin. There have been no reports of hypersensitivity incidents. Based on this information, no human health risks are expected when pesticide products containing tagetes oil are used according to their respective label directions.

IV. Assessing Risks to the Environment

The product is a contact insecticide/acaricide that operates through a physical mode of action. The product is practically nontoxic to birds, fish and aquatic invertebrates and is not phytotoxic; toxic endpoints have not been identified for these species. The product is practically nontoxic via exposure through contact to nontarget insects. Based on the data submitted, the Agency has indicated in its review that the product may be moderately toxic via oral exposure to nontarget insects; however, no mortality was observed at the highest dose tested in the study. Additionally, significant oral exposure is not anticipated as the product is a contact insecticide and is expected to degrade rapidly in the environment. Toxic endpoints have not

been identified for nontarget insects via the oral or contact route of exposure. The results of the submitted studies and screening-level risk assessment indicate that use of the product according to label instructions should not result in adverse effects to birds, fish, aquatic invertebrates, plants or nontarget insects.

V. Regulatory Information

This is the first registration of a product containing the new active ingredient, tagetes oil. On September 18, 2009, the Agency received an application from Exponent on behalf of Plant Impact plc, to register the end-use products (EPs), Bug Oil Food Use (EPA File Symbol No. 85937-E) and Bug Oil Ornamental (EPA File Symbol No. 85937-R), containing the new biochemical active ingredient, tagetes oil, and the currently registered active ingredients, canola oil, thyme oil, and wintergreen oil under the provisions of section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). On December 16, 2009, the Agency announced receipt of this application to register a pesticide product containing a new active ingredient (74 FR 66639) and opened a 30-day comment period pursuant to the provisions of FIFRA section 3(c)(4). No comments were received following this publication.

VI. Applicant Information

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1150 Connecticut Avenue, NW
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Washington, DC 20036

Plant Impact plc
12 South Preston Office Village
Cuerden Way
Bamber Bridge
Preston
PR5 6BL
United Kingdom

VII. Additional Contact Information

Ombudsman
Biopesticides and Pollution Prevention Division (7511P)
Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

